Table 3-7

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

VOC

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 13 Blast Furnace	Casthouse Fugitives	17,627	hot metal	0.0000	lb/ton	99.80%	0.00%	0.0000	0.0000	Not Applicable
	Casthouse Emission Control Baghouse	17,627	hot metal	0.00000	lb/ton	99.80%	0.00%	0.0000	0.0000	Not Applicable
	Slag Pit Operations	4,407	slag	0.00201	lb/ton	0.00%	0.00%	0.0044	0.0010	ISPAT Inland Permit Application
PCI	Coal Pulverizer Bldg.	2,644	coal	0.000	lb/ton	N/A	N/A	0.0000	0.0000	Not Applicable
No. 1 BOP Shop	Fugitives (Roof Monitor)					N/A	N/A	0.0002	0.0000	See VOC Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	20,738	molten steel	0.002	lb/ton	99.72%	0.00%	0.0207	0.0047	AIRS
	Hot Metal Desulfurization Baghouse	17,627	hot metal	0.001	lb/ton	98.50%	0.00%	0.0087	0.0020	AIRS
	Continuous Casting	20,738	molten steel	0.000	lb/ton	0.00%	0.00%	0.0000	0.0000	Not Applicable
	CAS Bell/OB Lancing Baghouse	20,738	molten steel	0.00000	lb/ton	94.99%	0.00%	0.0000	0.0000	Source registration notification submitted April 1995
	Flux Handling Baghouse	20,738	molten steel	0.00000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
No. 1 BOP Caster	Fugitives (Roof Monitor)	20,738	molten steel	0.00000	lb/ton	0.00%	N/A	0.0000	0.0000	Not Applicable

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

VOC

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 2 Q-BOP Shop LMF	Fugitives (Roof Monitor)					N/A	N/A	0.0000	0.0000	See VOC Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	0	molten steel	0.002	lb/ton	99.72%	0.00%	0.0000	0.0000	AIRS
	Hot Metal Desulfurization Baghouse	0	hot metal	0.001	lb/ton	99.40%	0.00%	0.0000	0.0000	AIRS
	Continuous Casting	0	molten steel	0.000	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	Secondary Emissions Baghouse	0	molten steel	0.000	lb/ton	99.72%	0.00%	0.0000	0.0000	Not Applicable
	116' Elevation North and South Flux Handling System Baghouses	0	molten steel	0.000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	North Roof Baghouse (166')	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	South Roof Baghouse (166')	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Middle Roof Baghouse (166')	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Day Tank Lime Silo Baghouse	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Lime Dump Station Baghouse	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 1 Hot Fume Exhaust Baghouse	0	molten steel	0.000	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	No. 2 Hot Fume Exhaust Baghouse	0	molten steel	0.000	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	LMF 1 & 2 Material Handling System	0	molten steel	0.000	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	0	molten steel	0.000	lb/ton	97.99%	0.00%	0.0000	0.0000	Not Applicable
	RH Vacuum Degasser Slag Conditioning Baghouse	0	molten steel	0.000	lb/ton	100.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Material Handling System	0	molten steel	0.000	lb/ton	97.99%	0.00%	0.0000	0.0000	Not Applicable
No. 2 Q-BOP Caster	Fugitives (Roof Monitor)	0	molten steel	0.00000	lb/ton	95.00%	N/A	0.0000	0.0000	Not Applicable

* - See Table 5, Attachment 1

Table 3-7a

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
FUGITIVE EMISSION CALCULATION

VOC

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
No. 1 BOP Shop	Gas Cleaning System (2 units)	20,738	molten steel	0.002	lb/ton	99.72%	0.0001	0.0000	Gas Cleaning System Factor
	Hot Metal Desulfurization Baghouse	17,627	hot metal	0.001	lb/ton	98.50%	0.0001	0.0000	Hot Metal Desulf Factor
	CAS Bell Baghouse	20,738	molten steel	0.00000	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	Flux Handling Baghouse	20,738	molten steel	0.00000	lb/ton	99.00%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.000	0.000	
No. 2 Q-BOP Shop & LMF	Gas Cleaning System (2 units)	0	molten steel	0.002	lb/ton	99.72%	0.0000	0.0000	Gas Cleaning System Factor
	Hot Metal Desulfurization Baghouse	0	hot metal	0.001	lb/ton	99.40%	0.0000	0.0000	Hot Metal Desulf Factor
	No. 1 Hot Fume Exhaust Baghouse	0	molten steel	0.000	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	No. 2 Hot Fume Exhaust Baghouse	0	molten steel	0.000	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	LMF 1 & 2 Material Handling System	0	molten steel	0.000	lb/ton	95.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	0	molten steel	0.000	lb/ton	97.99%	0.0000	0.0000	Not Applicable
	RH Vacuum Degasser Slag Conditioning Baghouse	0	molten steel	0.000	lb/ton	100.00%	0.0000	0.0000	Not Applicable
	LMF 3 Material Handling System	0	molten steel	0.000	lb/ton	97.99%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.0000	0.0000	Not Applicable

Table 3-13

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM COMBUSTION SOURCES

VOC

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
Blast Furnace No. 13	Stoves (NG)	7	mmcf	5.50	lb/mmcf	100.00%	0.00%	0.020	0.0046	AP-42 (1998)
	Stoves (BFG)	233	mmcf	0.00	lb/mmcf	100.00%	0.00%	0.000	0.0000	AIRS
						Total Stoves		0.020	0.005	
TBBH Boilers	TBBH Boilers (BFG)	649	mmcf	0.00	lb/mmcf	100.00%	0.00%	0.000	0.0000	AIRS
						Total Boiler House		0.000	0.000	

US STEEL GARY WORKS
CONTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE

All Additional Hot Metal Through No. 1 BOP

Source Description	Change in Emission Rate (tons/yr)
No. 13 Blast Furnace Casthouse Baghouse	7.09E-04
No. 13 Blast Furnace Stoves (NG)	6.94E-03
No. 13 Blast Furnace Stoves (BFG)	1.89E-02
TBBH Boilers (BFG)	5.27E-02
No. 1 BOP HM Desulfurization Baghouse	1.52E-03
No. 1 BOP Gas Cleaner	2.79E-03
No. 1 BOP CAS Bell/OB Lancing Baghouse	2.78E-03
No. 2 Caster Mold Baghouses	0.00E+00
No. 2 QBOP HM Desulfurization Baghouse	0.00E+00
No. 2 QBOP Secondary Emissions Baghouse	0.00E+00
No. 2 QBOP Gas Cleaner	0.00E+00
No. 1 LMF Fume Exhaust Baghouse	0.00E+00
No. 2 LMF Fume Exhaust Baghouse	0.00E+00
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	0.00E+00
TOTAL HAPs (tons/yr)	**0.0864**

US STEEL GARY WORKS
CONTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant	Change in Emission Rate (tons/yr)
2,4-Dinitrotoluene	1.37E-06
2-Chloroacetophenone	3.19E-05
Acetaldehyde	2.59E-03
Acetophenone	6.83E-05
Acrolein	1.32E-03
Antimony	1.01E-04
Arsenic	1.79E-05
Benzene	5.91E-03
Benzyl Chloride	3.19E-03
Beryllium	4.41E-08
Bromoform	1.77E-04
Cadmium	2.45E-05
Carbon Disulfide	5.91E-04
Carbonyl Sulfide	4.31E-03
Chlorobenzene	1.00E-04
Chloroform	2.68E-04
Chromium	3.59E-04
Cobalt	3.35E-06
Cumene	2.41E-05
Cyanide	1.14E-02
DEHP	3.32E-04
Dichlorobenzene	4.41E-06
Dimethyl Sulfate	2.19E-04
Ethelyne Dibromide	5.38E-06
Ethelyne Dichloride	1.82E-04
Ethyl Chloride	1.91E-04
Ethylbenzene	4.28E-04
Formaldehyde	1.37E-03
HCN	1.21E-03
Hexane	6.93E-03
Isophorone	2.64E-03
Lead	8.48E-04
Manganese	1.38E-02
Mercury	9.75E-07
Methyl Bromide	7.27E-04
Methyl Chloride	2.41E-03
Methyl Chloroform (1,1,1-Trichloroethane)	6.57E-05
Methyl Ethyl Ketone (MEK)	1.78E-03
Methyl Methacryalate	9.08E-05
Methyl tert butyl ether	1.59E-04
Methylene Chloride	1.32E-03
Methylhydrazine	7.76E-04
Naphthalene	2.08E-02
Nickel	2.71E-05
Phenol	7.27E-05
PDM	1.49E-06
Propionaldehyde	1.73E-03
Quinoline	7.40E-08
Selenium	8.58E-06
Styrene	1.14E-04
Tetrachloroethylene	1.96E-04
Toluene	1.11E-03
Vinyl Acetate	3.45E-05
Xylene	1.68E-04
TOTAL (tons/yr)	0.0903

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Antimony

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	1.77E-06	4.05E-07
No. 13 Blast Furnace Stoves (BFG)	2.33E-05	5.31E-06
TBBH Boilers (BFG)	6.49E-05	1.48E-05
No. 2 Caster Mold Baghouses	0.00E+00	0.00E+00
No. 2 QBOP HM Desulfurization Baghouse	0.00E+00	0.00E+00
No. 2 QBOP Secondary Emissions Baghouse	0.00E+00	0.00E+00
No. 2 QBOP Gas Cleaner	0.00E+00	0.00E+00
No. 1 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 2 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	0.00E+00	0.00E+00
No. 1 BOP HM Desulfurization Baghouse	6.08E-06	1.39E-06
No. 1 BOP Gas Cleaner	4.65E-06	1.06E-06
No. 1 BOP CAS Bell/OB Lancing Baghouse	7.92E-07	1.81E-07
Totals	0.0001	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Arsenic

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	1.66E-06	3.78E-07
No. 2 Caster Mold Baghouses	0.00E+00	0.00E+00
No. 2 QBOP HM Desulfurization Baghouse	0.00E+00	0.00E+00
No. 2 QBOP Secondary Emissions Baghouse	0.00E+00	0.00E+00
No. 2 QBOP Gas Cleaner	0.00E+00	0.00E+00
No. 1 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 2 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	0.00E+00	0.00E+00
No. 1 BOP HM Desulfurization Baghouse	1.06E-05	2.41E-06
No. 1 BOP Gas Cleaner	2.28E-06	5.20E-07
No. 1 BOP CAS Bell/OB Lancing Baghouse	2.68E-06	6.11E-07
No. 13 Blast Furnace Stoves (NG)	7.36E-07	1.68E-07
Totals	0.0000	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Benzene

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Stoves (BFG)	1.56E-03	3.56E-04
No. 13 Blast Furnace Stoves (NG)	7.72E-06	1.76E-06
TBBH Boilers (BFG)	4.35E-03	9.92E-04
Totals	0.0059	0.0013

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Beryllium

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Stoves (NG)	4.41E-08	1.01E-08
Totals	0.0000000	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Cadmium

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 2 Caster Mold Baghouses	0.00E+00	0.00E+00
No. 2 QBOP Secondary Emissions Baghouse	0.00E+00	0.00E+00
No. 2 QBOP Gas Cleaner	0.00E+00	0.00E+00
No. 1 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 2 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	0.00E+00	0.00E+00
No. 1 BOP CAS Bell/OB Lancing Baghouse	1.52E-05	3.47E-06
No. 13 Blast Furnace Stoves (NG)	4.05E-06	9.24E-07
No. 13 Blast Furnace Stoves (BFG)	6.51E-07	1.49E-07
TBBH Boilers (BFG)	1.82E-06	4.15E-07
No. 13 Blast Furnace Slag Pit Operations	2.76E-06	6.30E-07
Totals	0.0000	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Chromium

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	3.79E-05	8.64E-06
No. 2 Caster Mold Baghouses	0.00E+00	0.00E+00
No. 2 QBOP HM Desulfurization Baghouse	0.00E+00	0.00E+00
No. 2 QBOP Secondary Emissions Baghouse	0.00E+00	0.00E+00
No. 2 QBOP Gas Cleaner	0.00E+00	0.00E+00
No. 1 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 2 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	0.00E+00	0.00E+00
No. 1 BOP HM Desulfurization Baghouse	6.94E-05	1.59E-05
No. 1 BOP Gas Cleaner	1.19E-04	2.73E-05
No. 1 BOP CAS Bell/OB Lancing Baghouse	3.73E-05	8.51E-06
No. 13 Blast Furnace Stoves (NG)	5.15E-06	1.18E-06
No. 13 Blast Furnace Stoves (BFG)	1.12E-05	2.55E-06
TBBH Boilers (BFG)	3.12E-05	7.12E-06
No. 13 Blast Furnace Slag Pit Operations	4.78E-05	1.09E-05
Totals	0.0004	0.0001

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Cobalt

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 2 Caster Mold Baghouses	0.00E+00	0.00E+00
No. 2 QBOP HM Desulfurization Baghouse	0.00E+00	0.00E+00
No. 2 QBOP Secondary Emissions Baghouse	0.00E+00	0.00E+00
No. 1 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 2 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	0.00E+00	0.00E+00
No. 1 BOP HM Desulfurization Baghouse	1.25E-06	2.85E-07
No. 1 BOP Gas Cleaner	9.30E-07	2.12E-07
No. 1 BOP CAS Bell/OB Lancing Baghouse	8.67E-07	1.98E-07
No. 13 Blast Furnace Stoves (NG)	3.09E-07	7.05E-08
Totals	0.0000	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Dichlorobenzene

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Stoves (NG)	4.41E-06	1.01E-06
Totals	0.0000	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
:HANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Fluoride

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Slag Pit Operations	0.1066	0.0243
Totals	0.1066	0.0243

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Formaldehyde

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Stoves (BFG)	2.89E-04	6.59E-05
No. 13 Blast Furnace Stoves (NG)	2.76E-04	6.30E-05
TBBH Boilers (BFG)	8.04E-04	1.84E-04
Totals	0.0014	0.0003

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Hydrogen Sulfide

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Slag Granulator	0.3575	0.0816
Totals	0.3575	0.0816

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Hexane

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Stoves (BFG)	8.05E-05	1.84E-05
No. 13 Blast Furnace Stoves (NG)	6.62E-03	1.51E-03
TBBH Boilers (BFG)	2.24E-04	5.12E-05
Totals	0.0069	0.0016

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Lead

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	7.84E-06	1.79E-06
No. 13 Blast Furnace Stoves (BFG)	7.79E-06	1.78E-06
TBBH Boilers (BFG)	2.17E-05	4.96E-06
No. 2 Caster Mold Baghouses	0.00E+00	0.00E+00
No. 2 QBOP HM Desulfurization Baghouse	0.00E+00	0.00E+00
No. 2 QBOP Secondary Emissions Baghouse	0.00E+00	0.00E+00
No. 2 QBOP Gas Cleaner	0.00E+00	0.00E+00
No. 1 BOP HM Desulfurization Baghouse	3.04E-05	6.94E-06
No. 1 BOP Gas Cleaner	4.37E-04	9.98E-05
No. 1 BOP CAS Bell/OB Lancing Baghouse	3.10E-04	7.09E-05
No. 13 Blast Furnace Slag Pit Operations	3.31E-05	7.55E-06
Totals	0.0008	0.0002

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Manganese

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	6.52E-04	1.49E-04
TBBH Boilers (BFG)	2.46E-03	5.63E-04
No. 2 Caster Mold Baghouses	0.00E+00	0.00E+00
No. 2 QBOP HM Desulfurization Baghouse	0.00E+00	0.00E+00
No. 2 QBOP Secondary Emissions Baghouse	0.00E+00	0.00E+00
No. 2 QBOP Gas Cleaner	0.00E+00	0.00E+00
No. 1 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 2 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	0.00E+00	0.00E+00
No. 1 BOP HM Desulfurization Baghouse	1.40E-03	3.19E-04
No. 1 BOP Gas Cleaner	2.22E-03	5.07E-04
No. 1 BOP CAS Bell/OB.Lancing Baghouse	2.41E-03	5.50E-04
No. 13 Blast Furnace Stoves (NG)	1.40E-06	3.19E-07
No. 13 Blast Furnace Stoves (BFG)	8.84E-04	2.02E-04
No. 13 Blast Furnace Slag Pit Operations	3.78E-03	8.62E-04
Totals	0.0138	0.0032

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Mercury

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 2 Caster Mold Baghouses	0.00E+00	0.00E+00
No. 2 QBOP Secondary Emissions Baghouse	0.00E+00	0.00E+00
No. 1 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 2 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	0.00E+00	0.00E+00
No. 1 BOP CAS Bell/OB Lancing Baghouse	1.81E-08	4.13E-09
No. 13 Blast Furnace Stoves (NG)	9.56E-07	2.18E-07
Totals	9.75E-07	2.22E-07

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Naphthalene

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Stoves (BFG)	5.50E-03	1.26E-03
No. 13 Blast Furnace Stoves (NG)	2.24E-06	5.12E-07
TBBH Boilers (BFG)	1.53E-02	3.50E-03
Totals	2.08E-02	4.76E-03

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Nickel

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 1 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 2 LMF Fume Exhaust Baghouse	0.00E+00	0.00E+00
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	0.00E+00	0.00E+00
No. 13 Blast Furnace Stoves (NG)	7.72E-06	1.76E-06
No. 13 Blast Furnace Slag Pit Operations	1.94E-05	4.42E-06
Totals	0.0000	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Polycyclic Organic Matter (POM)

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	1.17E-06	2.67E-07
No. 13 Blast Furnace Stoves (NG)	3.24E-07	7.41E-08
Totals	1.49E-06	3.41E-07

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Quinoline

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	7.40E-08	1.69E-08
Totals	7.40E-08	1.69E-08

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Selenium

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	6.51E-06	1.49E-06
No. 2 QBOP HM Desulfurization Baghouse	0.00E+00	0.00E+00
No. 1 BOP HM Desulfurization Baghouse	1.98E-06	4.53E-07
No. 13 Blast Furnace Stoves (NG)	8.83E-08	2.02E-08
Totals	0.0000	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Toluene

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Stoves (BFG)	2.89E-04	6.59E-05
No. 13 Blast Furnace Stoves (NG)	1.25E-05	2.86E-06
TBBH Boilers (BFG)	8.04E-04	1.84E-04
Totals	1.11E-03	2.52E-04

Table A3 - A
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: Iron Producing
Emission Location: No. 13 Blast Furnace Casthouse Baghouse

Change in PM_{10} Emission Rate (tons/yr)	0.15

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.001200%	0.00000	0.00000
Arsenic	0.001120%	0.00000	0.00000
Chromium	0.025600%	0.00004	0.00001
Lead	0.005300%	0.00001	0.00000
Manganese	0.441000%	0.00065	0.00015
Selenium	0.004400%	0.00001	0.00000
POM	0.000790%	0.00000	0.00000
Quinoline	0.000050%	0.00000	0.00000
	Totals	0.00071	0.00016

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Table A3 - B
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM COMBUSTION SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: No. 13 Blast Furnace
Emission Location: Stoves (NG)

Change in Natural Gas Consumption (MMSCF/yr)	7.36

Hazardous Air Pollutant	Emission Factor (lb/MMSCF)[1]	Change in HAP Emission Rate	
		(tons/yr)	(lbs/hr)
Non-POMs			
Benzene	2.10E-03	7.72E-06	1.76E-06
Dichlorobenzene	1.20E-03	4.41E-06	1.01E-06
Formaldehyde	7.50E-02	2.76E-04	6.30E-05
Hexane	1.80E+00	6.62E-03	1.51E-03
Naphthalene	6.10E-04	2.24E-06	5.12E-07
Toluene	3.40E-03	1.25E-05	2.86E-06
Subtotal Non-POMs		*6.92E-03*	*1.58E-03*
POMs			
2-Methylnaphthalene	2.40E-05	8.83E-08	2.02E-08
3-Methylchloranthrene	1.80E-06	6.62E-09	1.51E-09
7,12-Dimethylbenz(a)-anthracene	1.60E-05	5.89E-08	1.34E-08
Acenaphthene	1.80E-06	6.62E-09	1.51E-09
Acenaphthylene	1.80E-06	6.62E-09	1.51E-09
Anthracene	2.40E-06	8.83E-09	2.02E-09
Benz(a)anthracene	1.80E-06	6.62E-09	1.51E-09
Benzo(a)pyrene	1.20E-06	4.41E-09	1.01E-09
Benzo(b)fluoranthene	1.80E-06	6.62E-09	1.51E-09
Benzo(g,h,I)perylene	1.20E-06	4.41E-09	1.01E-09
Benzo(k)fluoranthene	1.80E-06	6.62E-09	1.51E-09
Chrysene	1.80E-06	6.62E-09	1.51E-09
Dibenzo(a,h)anthracene	1.20E-06	4.41E-09	1.01E-09
Fluoranthene	3.00E-06	1.10E-08	2.52E-09
Fluorene	2.80E-06	1.03E-08	2.35E-09
Indeno(1,2,3-cd)pyrene	1.80E-06	6.62E-09	1.51E-09
Phenanathrene	1.70E-05	6.25E-08	1.43E-08
Pyrene	5.00E-06	1.84E-08	4.20E-09
Subtotal POMs		*3.24E-07*	*7.41E-08*
Metallic HAPs			
Arsenic	2.00E-04	7.36E-07	1.68E-07
Beryllium	1.20E-05	4.41E-08	1.01E-08
Cadmium	1.10E-03	4.05E-06	9.24E-07
Chromium	1.40E-03	5.15E-06	1.18E-06
Cobalt	8.40E-05	3.09E-07	7.05E-08
Manganese	3.80E-04	1.40E-06	3.19E-07
Mercury	2.60E-04	9.56E-07	2.18E-07
Nickel	2.10E-03	7.72E-06	1.76E-06
Selenium	2.40E-05	8.83E-08	2.02E-08
Subtotal Metallic HAPs		*2.05E-05*	*4.67E-06*
	Total HAPs	**6.94E-03**	**1.59E-03**

[1] Emission Factors specified in EPA's AP-42 Section 1.4, July 1998 for Natural Gas Combustio

Table A3 - C
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM COMBUSTION SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: No. 13 Blast Furnace
Emission Location: Stoves (BFG)

Change in Blast Furnace Gas Consumption (MMSCF/yr)	233

Hazardous Air Pollutant	Emission Factor (lb/MMSCF)[1]	Change in HAP Emission Rate	
		(tons/yr)	(lbs/hr)
Non-POM HAPs			
Acetaldehyde	5.88E-03	6.84E-04	1.56E-04
Acetophenone	1.55E-04	1.80E-05	4.12E-06
Acrolein	3.00E-03	3.49E-04	7.97E-05
Benzene	1.34E-02	1.56E-03	3.56E-04
Benzyl Chloride	7.23E-03	8.41E-04	1.92E-04
DEHP	7.54E-04	8.77E-05	2.00E-05
Bromoform	4.02E-04	4.68E-05	1.07E-05
Carbon Disulfide	1.34E-03	1.56E-04	3.56E-05
Carbonyl Sulfide	9.78E-03	1.14E-03	2.60E-04
2-Chloroacetophenone	7.25E-05	8.43E-06	1.93E-06
Chlorobenzene	2.27E-04	2.64E-05	6.03E-06
Chloroform	6.09E-04	7.08E-05	1.62E-05
Cumene	5.48E-05	6.38E-06	1.46E-06
Dimethyl Sulfate	4.96E-04	5.77E-05	1.32E-05
2,4-Dinitrotoluene	3.10E-06	3.61E-07	8.23E-08
Ethylbenzene	9.71E-04	1.13E-04	2.58E-05
Ethyl Chloride	4.34E-04	5.05E-05	1.15E-05
Ethelyne Dibromide	1.22E-05	1.42E-06	3.24E-07
Ethelyne Dichloride	4.13E-04	4.80E-05	1.10E-05
Formaldehyde	2.48E-03	2.89E-04	6.59E-05
Hexane	6.92E-04	8.05E-05	1.84E-05
Isophorone	5.99E-03	6.97E-04	1.59E-04
Methyl Bromide	1.65E-03	1.92E-04	4.38E-05
Methyl Chloride	5.47E-03	6.36E-04	1.45E-04
Methyl Chloroform (1,1,1-Trichloroethane)	1.49E-04	1.73E-05	3.96E-06
Methyl Ethyl Ketone (MEK)	4.03E-03	4.69E-04	1.07E-04
Methylhydrazine	1.76E-03	2.05E-04	4.67E-05
Methyl Methacrylate	2.06E-04	2.40E-05	5.47E-06
Methyl tert butyl ether	3.61E-04	4.20E-05	9.59E-06
Methylene Chloride	3.00E-03	3.49E-04	7.97E-05
Naphthalene	4.73E-02	5.50E-03	1.26E-03
Phenol	1.65E-04	1.92E-05	4.38E-06
Propionaldehyde	3.92E-03	4.56E-04	1.04E-04
Styrene	2.58E-04	3.00E-05	6.85E-06
Tetrachloroethylene	4.44E-04	5.17E-05	1.18E-05
Toluene	2.48E-03	2.89E-04	6.59E-05
Vinyl Acetate	7.83E-05	9.11E-06	2.08E-06
Xylene	3.82E-04	4.44E-05	1.01E-05
Subtotal of Non-POMs HAPs		*1.47E-02*	*3.35E-03*
Metallic HAPs			
Antimony	2.00E-04	2.33E-05	5.31E-06
Cadmium	5.60E-06	6.51E-07	1.49E-07
Chromium	9.61E-05	1.12E-05	2.55E-06
Cyanide	2.58E-02	3.00E-03	6.85E-04
HCN	2.74E-03	3.19E-04	7.28E-05
Lead	6.70E-05	7.79E-06	1.78E-06
Manganese	7.60E-03	8.84E-04	2.02E-04
Subtotal Metallic HAPs		*4.25E-03*	*9.70E-04*
	Totals	**1.89E-02**	**4.32E-03**

[1] Emission Factors from Ispat Inland HAPs Inventory

Table A3 - D
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM COMBUSTION SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: TBBH Boilers
Emission Location: TBBH Boilers (BFG)

Change in Blast Furnace Gas Consumption (MMSCF/yr)	649

Hazardous Air Pollutant	Emission Factor (lb/MMSCF)[1]	Change in HAP Emission Rate	
		(tons/yr)	(lbs/hr)
Non-POM HAPs			
Acetaldehyde	5.88E-03	1.91E-03	4.35E-04
Acetophenone	1.55E-04	5.03E-05	1.15E-05
Acrolein	3.00E-03	9.73E-04	2.22E-04
Benzene	1.34E-02	4.35E-03	9.92E-04
Benzyl Chloride	7.23E-03	2.34E-03	5.35E-04
DEHP	7.54E-04	2.45E-04	5.58E-05
Bromoform	4.02E-04	1.30E-04	2.98E-05
Carbon Disulfide	1.34E-03	4.35E-04	9.92E-05
Carbonyl Sulfide	9.78E-03	3.17E-03	7.24E-04
2-Chloroacetophenone	7.25E-05	2.35E-05	5.37E-06
Chlorobenzene	2.27E-04	7.36E-05	1.68E-05
Chloroform	6.09E-04	1.98E-04	4.51E-05
Cumene	5.48E-05	1.78E-05	4.06E-06
Dimethyl Sulfate	4.96E-04	1.61E-04	3.67E-05
2,4-Dinitrotoluene	3.10E-06	1.01E-06	2.30E-07
Ethylbenzene	9.71E-04	3.15E-04	7.19E-05
Ethyl Chloride	4.34E-04	1.41E-04	3.21E-05
Ethelyne Dibromide	1.22E-05	3.96E-06	9.03E-07
Ethelyne Dichloride	4.13E-04	1.34E-04	3.06E-05
Formaldehyde	2.48E-03	8.04E-04	1.84E-04
Hexane	6.92E-04	2.24E-04	5.12E-05
Isophorone	5.99E-03	1.94E-03	4.44E-04
Methyl Bromide	1.65E-03	5.35E-04	1.22E-04
Methyl Chloride	5.47E-03	1.77E-03	4.05E-04
Methyl Chloroform (1,1,1-Trichloroethane)	1.49E-04	4.83E-05	1.10E-05
Methyl Ethyl Ketone (MEK)	4.03E-03	1.31E-03	2.98E-04
Methylhydrazine	1.76E-03	5.71E-04	1.30E-04
Methyl Methacrylate	2.06E-04	6.68E-05	1.53E-05
Methyl tert butyl ether	3.61E-04	1.17E-04	2.67E-05
Methylene Chloride	3.00E-03	9.73E-04	2.22E-04
Naphthalene	4.73E-02	1.53E-02	3.50E-03
Phenol	1.65E-04	5.35E-05	1.22E-05
Propionaldehyde	3.92E-03	1.27E-03	2.90E-04
Styrene	2.58E-04	8.37E-05	1.91E-05
Tetrachloroethylene	4.44E-04	1.44E-04	3.29E-05
Toluene	2.48E-03	8.04E-04	1.84E-04
Vinyl Acetate	7.83E-05	2.54E-05	5.80E-06
Xylene	3.82E-04	1.24E-04	2.83E-05
Subtotal of Non-POMs HAPs		*4.09E-02*	*9.33E-03*
Metallic HAPs			
Antimony	2.00E-04	6.49E-05	1.48E-05
Cadmium	5.60E-06	1.82E-06	4.15E-07
Chromium	9.61E-05	3.12E-05	7.12E-06
Cyanide	2.58E-02	8.37E-03	1.91E-03
HCN	2.74E-03	8.89E-04	2.03E-04
Lead	6.70E-05	2.17E-05	4.96E-06
Manganese	7.60E-03	2.46E-03	5.63E-04
Subtotal Metallic HAPs		*1.18E-02*	*2.70E-03*
	Totals	**5.27E-02**	**1.20E-02**

[1] Emission Factors from Ispat Inland HAPs Inventory

Table A3 - E
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: Steel Producing
Emission Location: No. 1 BOP HM Desulfurization Baghouse

Change in PM_{10} Emission Rate (tons/yr)	0.32

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.001900%	0.00001	0.00000
Arsenic	0.003300%	0.00001	0.00000
Chromium	0.021700%	0.00007	0.00002
Cobalt	0.000390%	0.00000	0.00000
Lead	0.009500%	0.00003	0.00001
Manganese	0.437000%	0.00140	0.00032
Selenium	0.000620%	0.00000	0.00000
	Totals	0.00152	0.00035

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Table A3 - F
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: Steel Producing
Emission Location: No. 1 BOP Gas Cleaner

Change in PM_{10} Emission Rate (tons/yr)	0.46

Hazardous Air Pollutant	Weight Percent of HAP in Sludge	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.001000%	0.00000	0.00000
Arsenic	0.000490%	0.00000	0.00000
Chromium	0.025700%	0.00012	0.00003
Cobalt	0.000200%	0.00000	0.00000
Lead	0.094000%	0.00044	0.00010
Manganese	0.478000%	0.00222	0.00051
	Totals	0.00279	0.00064

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Table A3 - G
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: Steel Producing
Emission Location: No. 1 BOP CAS Bell/OB Lancing Baghouse

Change in PM_{10} Emission Rate (tons/yr)	0.11

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.000740%	0.00000	0.00000
Arsenic	0.002500%	0.00000	0.00000
Cadmium	0.014200%	0.00002	0.00000
Chromium	0.034800%	0.00004	0.00001
Cobalt	0.000810%	0.00000	0.00000
Lead	0.290000%	0.00031	0.00007
Manganese	2.250000%	0.00241	0.00055
Mercury	0.000017%	0.00000	0.00000
	Totals	0.00278	0.00063

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Table A3 - H
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: Steel Producing
Emission Location: No. 2 Caster Mold Baghouses

Change in PM_{10} Emission Rate (tons/yr)	0.00

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10) (tons/yr)	(lbs/hr)
Antimony	0.000560%	0.00000	0.00000
Arsenic	0.000620%	0.00000	0.00000
Cadmium	0.004380%	0.00000	0.00000
Chromium	0.005170%	0.00000	0.00000
Cobalt	0.002600%	0.00000	0.00000
Lead	0.022000%	0.00000	0.00000
Manganese	0.898000%	0.00000	0.00000
Mercury	0.000028%	0.00000	0.00000
	Totals	0.00000	0.00000

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Table A3 - I
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: Steel Producing
Emission Location: No. 2 QBOP HM Desulfurization Baghouse

Change in PM_{10} Emission Rate (tons/yr)	0.00

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.001900%	0.00000	0.00000
Arsenic	0.003300%	0.00000	0.00000
Chromium	0.021700%	0.00000	0.00000
Cobalt	0.000390%	0.00000	0.00000
Lead	0.009500%	0.00000	0.00000
Manganese	0.437000%	0.00000	0.00000
Selenium	0.000620%	0.00000	0.00000
	Totals	0.00000	0.00000

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Table A3 - J
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: Steel Producing
Emission Location: No. 2 QBOP Secondary Emissions Baghouse

Change in PM_{10} Emission Rate (tons/y	0.00

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.001200%	0.00000	0.00000
Arsenic	0.000720%	0.00000	0.00000
Cadmium	0.039900%	0.00000	0.00000
Chromium	0.040000%	0.00000	0.00000
Cobalt	0.000760%	0.00000	0.00000
Lead	0.084100%	0.00000	0.00000
Manganese	0.754000%	0.00000	0.00000
Mercury	0.000238%	0.00000	0.00000
	Totals	0.00000	0.00000

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Table A3 - K
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: Steel Producing
Emission Location: No. 2 QBOP Gas Cleaner

Change in PM_{10} Emission Rate (tons/yr)	0.00

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.000910%	0.00000	0.00000
Arsenic	0.000790%	0.00000	0.00000
Cadmium	0.001300%	0.00000	0.00000
Chromium	0.016800%	0.00000	0.00000
Lead	0.120000%	0.00000	0.00000
Manganese	0.447000%	0.00000	0.00000
	Totals	0.00000	0.00000

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Table A3 - L
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: Steel Producing
Emission Location: No. 1 LMF Fume Exhaust Baghouse

Change in PM_{10} Emission Rate (tons/yr)	0.00

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.002000%	0.00000	0.00000
Arsenic	0.004200%	0.00000	0.00000
Cadmium	0.002560%	0.00000	0.00000
Chromium	0.049000%	0.00000	0.00000
Cobalt	0.001800%	0.00000	0.00000
Manganese	6.690000%	0.00000	0.00000
Mercury	0.000009%	0.00000	0.00000
Nickel	0.020600%	0.00000	0.00000
	Totals	0.00000	0.00000

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Table A3 - M
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: Steel Producing
Emission Location: No. 2 LMF Fume Exhaust Baghouse

Change in PM_{10} Emission Rate (tons/yr)	0.00

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.002000%	0.00000	0.00000
Arsenic	0.004200%	0.00000	0.00000
Cadmium	0.002560%	0.00000	0.00000
Chromium	0.049000%	0.00000	0.00000
Cobalt	0.001800%	0.00000	0.00000
Manganese	6.690000%	0.00000	0.00000
Mercury	0.000009%	0.00000	0.00000
Nickel	0.020600%	0.00000	0.00000
	Totals	0.00000	0.00000

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Table A3 - N
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: Steel Producing
Emission Location: No. 3 LMF Fume Exhaust/Mat. Handling Baghouse

Change in PM_{10} Emission Rate (tons/yr)	0.00

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.002000%	0.00000	0.00000
Arsenic	0.004200%	0.00000	0.00000
Cadmium	0.002560%	0.00000	0.00000
Chromium	0.049000%	0.00000	0.00000
Cobalt	0.001800%	0.00000	0.00000
Manganese	6.690000%	0.00000	0.00000
Mercury	0.000009%	0.00000	0.00000
Nickel	0.020600%	0.00000	0.00000
	Totals	0.00000	0.00000

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Table A3 - CC
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: Steel Producing
Emission Location: No. 13 Blast Furnace Slag Pit Operations

Annual Production/Throughput Change = 4,407 tons slag

Hazardous Air Pollutant	Emission Factor (lb/ton slag)	HAP Emission Rate (tons/yr)	HAP Emission Rate (lbs/hr)
Cadmium	1.25E-06	0.00000	0.00000
Chromium	2.17E-05	0.00005	0.00001
Fluorides	4.84E-02	0.10664	0.02435
Hydrogen Cyanide	1.22E-06	0.00000	0.00000
Hydrogen Sulfide	1.62E-01	0.35750	0.08162
Lead	1.50E-05	0.00003	0.00001
Manganese	1.71E-03	0.00378	0.00086
Nickel	8.79E-06	0.00002	0.00000
	Totals	0.46802219	0.1068544

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US Steel Gary Works
Blast Furnace No. 13 Reline
Summary of Calculations Used to Estimate Change in Annual Production/Throughput Rate

Calculation of Change in Hot Metal Production Rate		Comments
Change in total steel production rate at No. 1 BOP (tons steel/yr)	0	Change in HM / 85% HM/Steel
Change in total steel production rate at No. 2 Q-BOP(tons steel/yr)	20,738	Change in HM / 85% HM/Steel
Ratio of hot metal to steel	0.85	
Change in hot metal annual production/throughput change (tons HM/yr)	17,627	Throughput Limit for Emissions Less than Significance Level
Baseline Hot Metal Production		Comments
No. 13 BF Baseline HM Production in June 1996 through May 1998 (tons HM/yr)	3,040,408	Production Nos from US Steel
Future Hot Metal Production		
No. 13 Future HM Production (tons HM/day)	8,378	
No. 13 Future HM Production (tons HM/yr)	3,058,035	Sum of baseline and change in hot metal production
Calculation of Change in Slag Granulation and Slag Pit Production Rate		Comments
Ratio of slag generation per ton of hot metal produced	0.25	Average slag generation rate / average hot metal production (EWB)
Total slag generation rate (tons slag/yr)	4,407	change in tons hot metal x ratio of tons slag per ton hot metal/ 0.25 x Increase in HM
Calculation of Change In Sinter Consumption at BF 13		Comments
June 1996 to May 1998 Average Annual Sinter Throughput (tons sinter/yr)	1,108,388.00	Sinter & Pellet Tonnage from Mike M
No. 13 BF Baseline HM Production in June 1996 through May 1998 (tons HM/yr)	3,040,408	Production Nos from US Steel
Sinter to HM Ratio	0.36	
Change in Sinter Plant Throughput (tons sinter/yr)	6,425.96	Sinter to HM Ratio x Change in HM Production
Calculation of PCI Change in Throughput Rate		Comments
Pounds of PCI consumed per ton of hot metal (before)	300	Production Rate from US Steel
Pounds of PCI consumed per ton of hot metal (after)	300	Production Rate from US Steel
Average tons of hot metal thruput (before)	3,040,408	Production Nos from US Steel
Average tons of hot metal thruput (after)	3,058,035	3,040,408 + change in hot metal production rate)
Tons of PCI consumed per year (before)	456,061	300 / 2000 x 3,040,408
Tons of PCI consumed per year (after)	458,705	300 / 2000 x (3,040,408 + change in hot metal production rate)
Change in PCI consumed per year (tons coal/yr)	2,644	Tons of PCI consumed (before) - Tons of PCI consumed (after)

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US Steel Gary Works
Blast Furnace No. 13 Reline
Summary of Calculations Used to Estimate Change in Annual Production/Throughput Rate

Calculation of Pigging Throughput Rate		**Comments**
Future Hot Metal Throughput Rate at Pigging Machine (tons hot metal/yr)	0.0	Hot Metal going to No. 1 or 2 Q-BOP Instead
Calculation of Change in Total Steel Production Rate		**Comments**
Change in total steel production rate at No. 1 Q-BOP (tons steel/yr)	0	Total Change in Steel Production
Change in total steel production rate at No. 2 Q- BOP (tons steel/yr)	20,738	Total Change in Steel Production
Calculation of Fuel Consumption Rates at No. 13 BF Stoves		**Comments**
Annual Average Hot Metal Production at BF #13 (tons hot metal/yr)	3,040,408	Production Nos from US Steel
Blast furnace gas heating value (BTU/scf)	90	
Natural gas heating value (BTU/scf)	1,020	
BFG Generation Rate (mmscf/ton hot metal)	0.05	Danieli
Jun 96-May 98No. 13 Blast Furnace BFG Consumption (mmscf/yr)	40,133.00	Production Nos from US Steel
BFG Stove Consumption/ Hot Metal Production	0.0132	
Future BFG Generation (mmscf/yr)	152,902	10,000 NTHM/day x 0.05 mmscf/ton HM x 365 days
1997 NG Consumption (mmscf/yr)	1,269.00	Production Nos from US Steel
NG Heat Input (MMBTU/yr)	1,294,380	NG 1997 Consumption / NG Heating Value
NG stoves consumption rate in mmcf per ton of hot metal	0.000417	Average NG stoves consumption rate / average tons hot metal
Change in BFG Stove Consumption (mmscf/yr)	232.7	Change in tons of hot metal x BFG consumption rate in mmscf per ton hot metal
Calculation of Increase in Fuel Consumption at TBBH Boilers (BFG)		
Excess BFG Gas to TBBH (mmscf/yr)	648.7	0.05 x Change in HM - Change in Stove Consump.
Change in NG Consumption Rate (mmscf/yr)	7.4	Change in tons of hot metal x NG consumption rate in mmscf per ton hot metal
Calculation of Change in Steel Processed at Round Casting		
Change in Steel Processed from Round Casting (tons steel/yr)	0	(4,000 THM/day x 365 days/yr) / 85%

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US Steel Gary Works
Blast Furnace No. 13 Reline
Summary of Calculations Used to Estimate Change in Annual Production/Throughput Rate

NO. 1 BOP		
1997 Steel Production at No. 1 BOP (tons steel/yr)	3,652,703.0	STEPS Spreadsheet
Calculation of change in Steel Production at No. 1 BOP		
Change in Steel Prodcution (tons steel/yr)	0	Total change in steel production
Change in Hot Metal Production (tons hot metal/yr)	0	Total change in hot metal production
Calculation of Change in Steel Processed at Continuous Casting		
Change in Steel Processed from Continuous Casting (tons steel/yr)	0	Total change in Steel Production
Calculation of Change in Steel Processed at CAS Bell/ OB Lancing		
Change in Steel Processed at CAS Bell/ OB Lancing (tons steel/yr)	0	Total change in steel production
NO. 2 Q-BOP		
1997 Annual Average Steel Production at No. 2 Q-BOP (tons steel/yr)	4,017,774	STEPS Spreadsheet
Calculation of change in Steel Production at No. 2 Q-BOP		
Change in Steel Production (tons steel/yr)	20,738	Total change in steel production
Change in Hot Metal Production (tons hot metal/yr)	17,627	Total change in hot metal production
Calculation of Change in Steel Processed at Continuous Casting		
Change in Steel Processed at No. 2Q- BOP Caster (tons steel/yr)	20,738	Total change in steel production
Calculation of Change in Steel Processed at LMF 1&2 Electric Arc		
Change in Steel Processed at LMF 1 &2 Electric Arc (tons steel/yr)	6,913	33% of change in steel produced
Calculation of Change in Steel Processed at LMF 1&2 Material Handling		
Change in Steel Processed at LMF 1&2 Material Handling (tons steel/yr)	13,825	66% of change in steel produced
Calculation of Change in Steel Processed at LMF 3 Electric Arc		
Change in Steel Processed at LMF 3 Electric Arc (tons steel/yr)	6,913	33% of change in steel produced
Calculation of Change in Steel Processed at LMF 3 Material Handling Sys		
Change in Steel Processed Consumption Rate (tons steel/yr)	6,913	33% of change in steel produced
Calculation of Change in Steel Throughput at RH Vacuum Degasser		
June 1996 - May 1998 Steel Throughput at RH Vacuum Degasser (tons steel/yr)	1,424,484.0	STEPS Spreadsheet
Ratio of Steel Throughput at PH Vacuum Degasser / Average Annual Steel Production (entire plant)	0.185710	Annual Average Steel Processed at Ladle Dryers / Annual Average Steel Production
Change in Steel Throuhput Rate at RH Vacuum Degasser(tons steel/yr)	3,851	Increase in Steel Production x Ratio
Calculation of Change in Fuel Consumption at Sinter Plant		**Comments**
Change in Sinter Plant Production Rate (tons sinter/hr)	0	Production Rate from EWB
Future NG Consumption Rate (MMSCF/yr)	0	Change in Sinter Production / Change in Sinter Prod Rate x 25 MMBTU/hr / (NG Heating Value x 2 lines)

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US Steel Gary Works
Blast Furnace No. 13 Reline
Calculation of Annual Change in Production/Throughput Rate

Emission Unit	Emission Location	Annual Production/ Thruput Change	Units	Comments
Blast Furnace No. 13	Casthouse Fugitives	17,627	hot metal	Total change in Hot Metal production
	Slag Pit Operation For Other Pollutants	4,407	slag	25% of total change in hot metal production
	Charging	17,627	hot metal	Total change in Hot Metal production
	Sinter Screening	0	sinter	No longer in use
PCI	Coal Pulverizing Building	2,644	coal	4,000 NTHM per day
No. 1 BOP	O2 Blowing, Charging & Tapping	0	steel	Total change in Steel production
	Hot Metal Desulf	0	hot metal	Total change in Hot Metal production
	Continuous Casting	0	steel	Total change in Steel production
	CAS Bell	0	steel	Total change in Steel production
	Flux Handling	0	steel	Total change in Steel production
	Fugitives	0	steel	Not Applicable
No. 1 BOP Caster	Fugitives	0	steel	Total change in Steel production

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US Steel Gary Works
Blast Furnace No. 13 Reline
Calculation of Annual Change in Production/Throughput Rate

Emission Unit	Emission Location	Annual Production/ Thruput Change	Units	Comments
No. 2 Q-BOP	O2 Blowing, Charging & Tapping	20,738	steel	Total change in Steel production
	Hot Metal Desulf	17,627	hot metal	Total change in Hot Metal production
	Continuous Casting	20,738	steel	Total change in Steel production
	Secondary Emission Control Baghouse	20,738	steel	Total change in Steel production
	North Roof Baghouse	20,738	steel	Total change in Steel production
	Middle Roof Baghouse	20,738	steel	Total change in Steel production
	South Roof Baghouse	20,738	steel	Total change in Steel production
	166' Elevation North & South Flux Handling System Baghouse Baghouses	20,738	steel	Total change in Steel production
	Day Tank Lime Silo Baghouse	20,738	steel	Total change in Steel production
	Lime Dump Station Baghouse	20,738	steel	Total change in Steel production
	Fugitives	0	steel	Not Applicable
No. 2 Q-BOP Caster	Fugitives	20,738	steel	Total change in Steel production
No. 2 Q-BOP LMF	LMF 1 Electric Arc	6,913	steel	1/3 of total change in steel production
	LMF 2 Electric Arc	6,913	steel	1/3 of total change in steel production
	LMF 1 & 2 Material Handling Sys	13,825	steel	1/2 of total change in steel production
	LMF 3 Hot Fume Extracation Exhaust	6,913	steel	1/3 of total change in steel production
	RH Vacuum Degasser	3,851	steel	19% of total change in steel production
	LMF 3 Material Handling System	6,913	steel	1/3 of total change in steel production
Blast Furnace No. 13	Stoves (NG)	7	mmcf	0.04% of total change in hot metal production
	Stoves (BFG)	233	mmcf	1.3% of total change in hot metal production
TBBH	TBBH Boiler No. 1 (BFG)	649	mmcf	Total change in hot metal prod x BFG gen. rate - BFG consumption at the stoves

U.S. Steel Gary Works
Calculation of Change in Hours of Operation
Baghouses with PM10 Limits (lbs/hr)

All Additional Hot Metal Through No Emission Location	Future Hours of Operation	Current	Increase Operation Hours
No.13 BF Casthouse Baghouse	8,154	8,147	8
Nos.1 & 2 BOPs Baghouse	7,572	7,534	38
No. 2 Q-BOP	8,275	8,234	41

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES
NO. 13 BLAST FURNACE FUTURE HOT METAL PRODUCTION RATE (TONS/DAY):
8,378
All Additional Hot Metal Through the No.2 Q- BOP

Emission Unit	Emission Location	Changes in Annual Emission Rates of Criteria Air Pollutants											
		PM_{10}		PM		SO_2		CO		NO_X		VOC	
		tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr
Blast Furnace No.13	Casthouse Baghouse	0.1463	0.0334	0.0000	0.0000	2.8976	0.6616	0.0000	0.0000	0.2181	0.0498	0.0000	0.0000
	Casthouse Baghouse (Roof Monitor)	0.0016	0.0004	0.0032	0.0007	0.0058	0.0013	0.0000	0.0000	0.0004	0.0001	0.0000	0.0000
	Slag Pit Operations	0.5942	0.1357	0.8728	0.1993	1.0102	0.2307	0.1779	0.0406	0.0465	0.0106	0.0044	0.0010
	Stoves (NG)	0.0280	0.0064	0.0280	0.0064	0.0022	0.0005	0.3090	0.0705	1.0300	0.2352	0.0202	0.0046
	Stoves (BFG)	0.1117	0.0255	0.3374	0.0770	0.7434	0.1697	3.0829	0.7039	0.0710	0.0162	0.0000	0.0000
	Blast Furnace No. 13 Total	**0.8818**	**0.2013**	**1.2413**	**0.2834**	**4.6593**	**1.0638**	**3.5699**	**0.8150**	**1.3660**	**0.3119**	**0.0246**	**0.0056**
TBBH Boilers	**TBBH Boilers (BFG)**	0.3114	0.0711	0.9406	0.2147	2.0725	0.4732	8.5950	1.9623	0.1978	0.0452	0.0000	0.0000
PCI	Coal Pulverizer Bldg.	0.0093	0.0021	0.0106	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	PCI Total	**0.0093**	**0.0021**	**0.0106**	**0.0024**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
No. 1 BOP	Gas Cleaning Systems	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Gas Cleaning Systems (Roof Monitor)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Hot Metal Desulf Baghouse	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Hot Metal Desulf Baghouse (Roof Monitor)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Continuous Casting	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000	0.0000
	CAS Bell Baghouse	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	CAS Bell Baghouse (Roof Monitor)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Flux Handling Baghouse	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Flux Handling Baghouse (Roof Monitor)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	No. 1 BOP Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
No. 1 BOP Caster	Fugitives (Roof Monitor)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
No. 2 Q-BOP	Gas Cleaning Systems	1.1216	0.2561	0.3822	0.0873	0.0000	0.0000	80.6193	18.4062	0.8272	0.1889	0.0207	0.0047
	Gas Cleaning Systems (Roof Monitor)	0.2099	0.0479	0.3204	0.0732	0.0000	0.0000	4.0065	0.9147	0.0023	0.0005	0.0001	0.0000
	Hot Metal Desulf Baghouse	0.2475	0.0565	0.2475	0.0565	0.4380	0.1000	0.0000	0.0000	0.0210	0.0048	0.0088	0.0020
	Hot Metal Desulf Baghouse (Roof Monitor)	0.0053	0.0012	0.0200	0.0046	0.0026	0.0006	0.0000	0.0000	0.0001	0.0000	0.0001	0.0000
	Continuous Casting	1.21E-04	2.77E-05	4.14E-06	9.45E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000	0.0000
	Secondary Emissions Baghouse	0.5140	0.1174	0.5140	0.1174	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	116' Elevation North and South Flux Handling System Baghouses	0.0343	0.0078	0.0343	0.0078	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	116' Elevation North and South Flux Handling System Baghouses (Roof Monitor)	0.0003	0.0001	0.0006	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	North Roof Baghouse (166')	0.0097	0.0022	0.0097	0.0022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	North Roof Baghouse (166') (Roof Monitor)	0.0003	0.0001	0.0006	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	South Roof Baghouse (166')	0.0097	0.0022	0.0097	0.0022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	South Roof Baghouse (166') (Roof Monitor)	0.0003	0.0001	0.0006	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Middle Roof Baghouse (166')	0.0097	0.0022	0.0097	0.0022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Middle Roof Baghouse (166') (Roof	0.0003	0.0001	0.0006	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Day Tank Lime Silo Baghouse	0.0154	0.0035	0.0154	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Day Tank Lime Silo Baghouse (Roof	0.0009	0.0002	0.0020	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Lime Dump Station Baghouse	0.0086	0.0020	0.0086	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Lime Dume Station Baghouse (Roof	0.0009	0.0002	0.0020	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES
NO. 13 BLAST FURNACE FUTURE HOT METAL PRODUCTION RATE (TONS/DAY):
8,378
All Additional Hot Metal Through the No.2 Q- BOP

Emission Unit	Emission Location	Changes in Annual Emission Rates of Criteria Air Pollutants											
		PM_{10}		PM		SO_2		CO		NO_X		VOC	
No. 2 Q-BOP	No. 1 Hot Fume Exhaust Baghouse	0.0971	0.0222	0.0971	0.0222	0.0000	0.0000	0.1642	0.0375	0.0098	0.0022	0.0000	0.0000
	No. 1 Hot Fume Exhaust Baghouse (Roof Monitor)	0.0088	0.0020	0.0088	0.0020	0.0000	0.0000	0.0087	0.0020	0.0005	0.0001	0.0000	0.0000
	No. 2 Hot Fume Exhaust Baghouse	0.0971	0.0222	0.0971	0.0222	0.0000	0.0000	0.1642	0.0375	0.0098	0.0022	0.0000	0.0000
	No. 2 Hot Fume Exhaust Baghouse (Roof Monitor)	0.0088	0.0020	0.0088	0.0020	0.0000	0.0000	0.0087	0.0020	0.0005	0.0001	0.0000	0.0000
	No. 1&2 Material Handling System	0.0729	0.0166	0.0729	0.0166	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	No. 1 & 2 Material Handling System (Roof Monitor)	0.0009	0.0002	0.0020	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	No. 3 LMF Hot Fume Extraction Exhaust/ Material Handling System	0.0514	0.0117	0.0514	0.0117	0.0000	0.0000	0.1693	0.0387	0.0102	0.0023	0.0000	0.0000
	No. 3 LMF Hot Fume Extraction Exhaust/ Material Handling System (Roof Monitor)	0.0035	0.0008	0.0035	0.0008	0.0000	0.0000	0.0035	0.0008	0.0002	0.0000	0.0000	0.0000
	No. 3 LMF Material Handling System	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	No. 3 LMF Material Handling System (Roof Monitor)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	RH Vacuum Degasser Slag Conditioning Baghouse	0.1045	0.0239	0.1045	0.0239	0.0000	0.0000	1.7080	0.3900	0.0003	0.0001	0.0000	0.0000
	RH Vacuum Degasser Slag Conditioning Baghouse (Roof Monitor)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	No. 2 Q-BOP Total	**2.6339**	**0.6014**	**2.0239**	**0.4621**	**0.4407**	**0.1006**	**86.8523**	**19.8293**	**0.8821**	**0.2014**	**0.0296**	**0.0067**
No. 2 Q-BOP Caster	Fugitives (Roof Monitor)	0.0006	0.0001	0.0022	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
OVERALL TOTAL		**3.837**	**0.8760**	**4.2186**	**0.9632**	**7.1724**	**1.6375**	**99.0171**	**22.6066**	**2.4459**	**0.5584**	**0.0542**	**0.0124**

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES
NO. 13 BLAST FURNACE FUTURE HOT METAL PRODUCTION RATE (TONS/DAY):
8,378
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Changes in Annual Emission Rates of Criteria Air Pollutants											
		PM_{10}		PM		SO_2		CO		NO_X		VOC	
		tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr
Blast Furnace No.13	Casthouse Baghouse	0.1479	0.0338	0.0032	0.0007	2.9034	0.6629	0.0000	0.0000	0.2186	0.0499	0.0000	0.0000
	Slag Pit Operations	0.5942	0.1357	0.8728	0.1993	1.0102	0.2307	0.1779	0.0406	0.0465	0.0106	0.0044	0.0010
	Stoves (NG)	0.0280	0.0064	0.0280	0.0064	0.0022	0.0005	0.3090	0.0705	1.0300	0.2352	0.0202	0.0046
	Stoves (BFG)	0.1117	0.0255	0.3374	0.0770	0.7434	0.1697	3.0829	0.7039	0.0710	0.0162	0.0000	0.0000
	Blast Furnace No. 13 Total	**0.8818**	**0.2013**	**1.2413**	**0.2834**	**4.6593**	**1.0638**	**3.5699**	**0.8150**	**1.3660**	**0.3119**	**0.0246**	**0.0056**
T8BH Boilers	T8BH Boilers (BFG)	0.3114	0.0711	0.9406	0.2147	2.0725	0.4732	8.5950	1.9623	0.1978	0.0452	0.0000	0.0000
PCI	Coal Pulverizer Baghouse	0.0093	0.0021	0.0106	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	PCI Total	**0.0093**	**0.0021**	**0.0106**	**0.0024**	**0.0000**	**0.0000**	0.0000	**0.0000**	0.0000	**0.0000**	**0.0000**	0.0000
	Hot Metal Desulf Baghouse	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Continuous Casting	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	CAS Bell Baghouse	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Flux Handling Baghouse	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	No. 1 BOP Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
No. 1 BOP Caster	Fugitives (Roof Monitor)	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	0.0000	0.0000
No. 2 Q-BOP	Gas Cleaning Systems	1.3315	0.3040	0.7026	0.1604	0.0000	0.0000	84.6259	19.3210	0.8295	0.1894	0.0207	0.0047
	Hot Metal Desulf Baghouse	0.2528	0.0577	0.2675	0.0611	0.4407	0.1006	0.0000	0.0000	0.0212	0.0048	0.0088	0.0020
	Continuous Casting	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Secondary Emissions Baghouse	0.5140	0.1174	0.5140	0.1174	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	116' Elevation North and South Flux Handling System Baghouses	0.0345	0.0079	0.0349	0.0080	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	North Roof Baghouse (166')	0.0100	0.0023	0.0103	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	South Roof Baghouse (166')	0.0100	0.0023	0.0103	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Middle Roof Baghouse (166')	0.0100	0.0023	0.0103	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Day Tank Lime Silo Baghouse	0.0164	0.0037	0.0174	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Lime Dump Station Baghouse	0.0095	0.0022	0.0105	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	No. 1 Hot Fume Exhaust Baghouse	0.1059	0.0242	0.1059	0.0242	0.0000	0.0000	0.1728	0.0395	0.0104	0.0024	0.0000	0.0000
	No. 2 Hot Fume Exhaust Baghouse	0.1059	0.0242	0.1059	0.0242	0.0000	0.0000	0.1728	0.0395	0.0104	0.0024	0.0000	0.0000
	No. 1&2 Material Handling System	0.0738	0.0169	0.0749	0.0171	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	No. 3 LMF Hot Fume Extraction Exhaust/ Material Handling System	0.0549	0.0125	0.0549	0.0125	0.0000	0.0000	0.1728	0.0395	0.0104	0.0024	0.0000	0.0000
	No. 3 LMF Material Handling System	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	RH Vacuum Degasser Slag Conditioning Baghouse	0.1045	0.0239	0.1045	0.0239	0.0000	0.0000	1.7080	0.3900	0.0003	0.0001	0.0000	0.0000
	No. 2 Q-BOP Total	**2.6339**	**0.6014**	**2.0239**	**0.4621**	**0.4407**	**0.1006**	**86.8523**	**19.8293**	**0.8821**	**0.2014**	**0.0296**	**0.0067**
No. 2 Q-BOP Caster	Fugitives (Roof Monitor)	**0.0006**	**0.0001**	**0.0022**	**0.0005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	0.0000	**0.0000**	**0.0000**	0.0000
OVERALL TOTAL		3.837	0.876	4.219	0.963	7.172	1.638	99.017	22.607	2.446	0.558	0.0542	0.012

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
EMISSION RATES FOR GASEOUS AIR POLLUTANTS
NO. 13 BLAST FURNACE FUTURE HOT METAL PRODUCTION RATE (TONS/DAY):
8,378
All Additional Hot Metal Through The #2 Q- BOP

Emission Unit	PM_{10}		PM		SO_2		CO		NO_X		VOC	
	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr
No. 13 Blast Furnace	0.88	0.20	1.24	0.28	4.66	1.06	3.57	0.82	1.37	0.31	0.02	0.01
TBBH Boilers	0.31	0.07	0.94	0.21	2.07	0.47	8.59	1.96	0.20	0.05	0.00	0.00
PCI	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 1 BOP Shop	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 1 BOP Caster	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 2 Q-BOP Shop LMF	2.63	0.60	2.02	0.46	0.44	0.10	86.85	19.83	0.88	0.20	0.03	0.01
No. 2 Q-BOP Caster	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	**3.837**	**0.876**	**4.219**	**0.963**	**7.172**	**1.638**	**99.017**	**22.607**	**2.446**	**0.558**	**0.054**	**0.012**

Table 3-14
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES
PM

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 13 Blast Furnace	Casthouse Fugitives *	17,627	hot metal	0.60	lb/ton	99.80%	N/A	0.0032	0.0007	AP-42
	Casthouse Emission Control Baghouse	8	hours	0.0024	lb/ton	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	Slag Pit Operations	4,407	slag	0.396	lb/ton	0.00%	0.00%	0.8728	0.1993	ISPAT Inland Permit Application
PCI	Coal Pulverizer Bldg.	2,644	coal	0.008	lb/ton	N/A	N/A	0.0106	0.0024	Ispat Inland PCI Controlled Emission Factor
No. 1 BOP Shop	Fugitives (Roof Monitor)					N/A	N/A	0.0000	0.0000	See PM Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	0	molten steel	36.97	lb/ton	99.72%	99.90%	0.0000	0.0000	AP-42
	Hot Metal Desulfurization Baghouse	0	hours	15.00	lb/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	Continuous Casting	0	molten steel	0.014	lb/ton	0.00%	0.00%	0.0000	0.0000	PM10 SIP Background Documentation for No. 2 Caster
	CAS Bell/OB Lancing Baghouse	0	hours	5.100	lb/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	Flux Handling Baghouse	0	hours	1.920	lb/hr	N/A	N/A	0.0000	0.0000	SIP Modeling Limit
No. 1 BOP Caster	Fugitives (Roof Monitor) *	0	molten steel	0.014	lb/ton	0.00%	N/A	0.0000	0.0000	PM10 SIP Background Documentation for No. 2 Caster

Table 3-14
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

PM

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 2 Q-BOP Shop LMF	Fugitives (Roof Monitor)					N/A	N/A	0.3699	0.0844	See PM Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	20,738	molten steel	36.960	lb/ton	99.72%	99.90%	0.3822	0.0873	AP-42
	Hot Metal Desulfurization Baghouse	38	hours	13.000	lb/hr	N/A	N/A	0.2475	0.0565	SIP Limit (Controlled Emissions)
	Continuous Casting *	20,738	molten steel	0.014	lb/ton	95.00%	99.99%	0.0000	0.0000	PM10 SIP Background Documentation for No. 2 Caster
	Secondary Emissions Baghouse	38	hours	27.000	lb/hr	N/A	N/A	0.5140	0.1174	SIP Limit (Controlled Emissions)
	116' Elevation North and South Flux Handling System Baghouses	38	hours	1.800	lb/hr	N/A	N/A	0.0343	0.0078	SIP Limit (Controlled Emissions)
	North Roof Baghouse (166')	38	hours	0.510	lb/hr	N/A	N/A	0.0097	0.0022	SIP Limit (Controlled Emissions)
	South Roof Baghouse (166')	38	hours	0.510	lb/hr	N/A	N/A	0.0097	0.0022	SIP Limit (Controlled Emissions)
	Middle Roof Baghouse (166')	38	hours	0.510	lb/hr	N/A	N/A	0.0097	0.0022	SIP Limit (Controlled Emissions)
	Day Tank Lime Silo Baghouse	38	hours	0.810	lb/hr	N/A	N/A	0.0154	0.0035	SIP Modeling Limit
	Lime Dump Station Baghouse	38	hours	0.450	lb/hr	N/A	N/A	0.0086	0.0020	SIP Modeling Limit
	No. 1 Hot Fume Exhaust Baghouse	38	hours	5.100	lb/hr	N/A	N/A	0.0971	0.0222	SIP Limit (Controlled Emissions)
	No. 2 Hot Fume Exhaust Baghouse	38	hours	5.1	lb/hr	N/A	N/A	0.0971	0.0222	SIP Limit (Controlled Emissions)
	LMF 1 & 2 Material Handling System	38	hours	3.830	lb/hr	N/A	N/A	0.0729	0.0166	SIP Limit (Controlled Emissions)
	No. 3 LMF Hot Fume Extracation Exhaust	38	hours	2.700	lb/hr	N/A	N/A	0.0514	0.0117	SIP Limit (Controlled Emissions)
	RH Vacuum Degasser Slag Conditioning Baghouse	38	hours	5.490	lb/hr	N/A	N/A	0.1045	0.0239	SIP Limit (Controlled Emissions)
	No. 3 LMF Material Handling System	38	hours	0.000	lb/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
No. 2 Q-BOP Caster	Fugitives (Roof Monitor) *	20,738	molten steel	0.014	lb/ton	95.00%	N/A	0.0022	0.0005	PM10 SIP Background Documentation for No. 2 Caster

* - Emission unit locations where 70% containment efficiency was applied to the controlled annual change in emissions

Table 3-14a
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
FUGITIVE EMISSION CALCULATION

PM

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
No. 1 BOP Shop	Gas Cleaning System (2 units)	0	molten steel	36.96	lb/ton	99.72%	0.0000	0.0000	AP-42
	Hot Metal Desulfurization Baghouse *	0	hot metal	1.09	lb/ton	98.50%	0.0000	0.0000	AP-42
	CAS Bell Baghouse	0	molten steel	0.0640	lb/ton	94.99%	0.0000	0.0000	Source Registration Notification (April 1995)
	Flux Handling Baghouse	0	molten steel	0.0190	lb/ton	99.00%	0.0000	0.0000	AP-42
Total Fugitives (Roof Monitor - 70% Building Containment Efficiency where applicable)							0.000	0.000	
No. 2 Q-BOP Shop & LMF	Gas Cleaning System (2 units)	20,738	molten steel	36.7900	lb/ton	99.72%	0.3204	0.0732	AP-42
	Hot Metal Desulfurization Baghouse	17,627	hot metal	1.2590	lb/ton	99.40%	0.0200	0.0046	AP-42
	No. 1 Hot Fume Exhaust Baghouse	6,913	molten steel	0.17	lb/ton	94.99%	0.0088	0.0020	Gary Works No. 3 LMF CPA Addendum (April 1995)
	No. 2 Hot Fume Exhaust Baghouse	6,913	molten steel	0.17	lb/ton	94.99%	0.0088	0.0020	Gary Works No. 3 LMF CPA Addendum (April 1995)
	LMF 1 & 2 Material Handling System	13,825	molten steel	0.019	lb/ton	95.00%	0.0020	0.0004	AP-42
	No. 3 LMF Hot Fume Extracation Exhaust/ Material Handling	6,913	molten steel	0.17	lb/ton	97.99%	0.0035	0.0008	Gary Works No. 3 LMF CPA Addendum (April 1995)
	RH Vacuum Degasser Slag Conditioning Baghouse	3,851	molten steel	0.165	lb/ton	100.00%	0.0000	0.0000	Nippon Steel Test
	116' Elevation North and South Flux Handling Baghouse	20,738	molten steel	0.019	lb/ton	99.00%	0.0006	0.0001	Same as LMF Material Handling
	North Roof Baghouse (166')	20,738	molten steel	0.019	lb/ton	99.00%	0.0006	0.0001	Same as LMF Material Handling
	South Roof Baghouse (166')	20,738	molten steel	0.019	lb/ton	99.00%	0.0006	0.0001	Same as LMF Material Handling
	Middle Roof Baghouse (166')	20,738	molten steel	0.019	lb/ton	99.00%	0.0006	0.0001	Same as LMF Material Handling
	Day Tank Lime Silo Baghouse *	20,738	molten steel	0.019	lb/ton	99.00%	0.0020	0.0004	Same as LMF Material Handling
	Lime Dump Station Baghouse *	20,738	molten steel	0.019	lb/ton	99.00%	0.0020	0.0004	Same as LMF Material Handling
Total Fugitives (Roof Monitor - 70% Building Containment Efficiency where applicable)							0.3699	0.0844	

* - Emissions Unit Locations where 70% containment efficiency was not applicable.

Table 3-20
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM COMBUSTION SOURCES

PM

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
Blast Furnace No. 13	Stoves (NG)	7	mmcf	7.60	lb/mmcf	100.00%	0.00%	0.028	0.0064	AP-42
	Stoves (BFG)	233	mmcf	2.90	lb/mmcf	100.00%	0.00%	0.337	0.0770	AIRS
						Total Stoves		0.365	0.083	
TBBH Boilers	TBBH Boilers (BFG)	649	mmcf	2.90	lb/mmcf	100.00%	0.00%	0.941	0.2147	AIRS
						Total Boiler House		0.941	0.215	

Table 3-15
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

PM_{10}

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 13 Blast Furnace	Casthouse Fugitives *	17,627	hot metal	0.306	lb/ton	99.80%	N/A	0.0016	0.0004	AP-42
	Casthouse Emission Control Baghouse	8	hours	38.570	lbs/hr	N/A	N/A	0.1463	0.0334	SIP Limit (Controlled Emissions)
	Slag Pit Operations	4,407	slag	0.2697	lb/ton	0.00%	0.00%	0.5942	0.1357	ISPAT Inland Permit
PCI	Coal Pulverizer Bldg.	2,644	coal	0.007	lb/ton	N/A	N/A	0.0093	0.0021	Ispat Inland PCI Controlled Emission Factor
No. 1 BOP Shop	Fugitives (Roof Monitor)					N/A	N/A	0.0000	0.0000	See PM10 Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	0	molten steel	24.40	lb/ton	99.72%	99.90%	0.0000	0.0000	AP-42
	Hot Metal Desulfurization Baghouse	0	hours	15.00	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	Continuous Casting	0	molten steel	0.0041	lb/ton	0.00%	0.00%	0.0000	0.0000	PM10 SIP Background Documentation for No. 2 Caster
	CAS Bell/OB Lancing Baghouse	0	hours	5.1000	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	Flux Handling Baghouse	0	hours	1.9200	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Modeling Limit
No. 1 BOP Caster	Fugitives (Roof Monitor) *	0	molten steel	0.0041	lb/ton	0.00%	N/A	0.0000	0.0000	PM10 SIP Background Documentation for No. 2 Caster

Table 3-15
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES
PM_{10}
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 2 Q-BOP Shop LMF	Fugitives (Roof Monitor)					N/A	N/A	0.2403	0.0549	See PM10 Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	20,738	molten steel	24.1000	lb/ton	99.72%	99.55%	1.1216	0.2561	AP-42
	Hot Metal Desulfurization Baghouse	38	hours	13.0000	lbs/hr	N/A	N/A	0.2475	0.0565	SIP Limit (Controlled Emissions)
	Continuous Casting *	20,738	molten steel	0.0041	lb/ton	95.00%	99.00%	1.21E-04	2.77E-05	PM10 SIP Background Documentation for No. 2 Caster
	Secondary Emissions Baghouse	38	hours	27.0000	lbs/hr	N/A	N/A	0.5140	0.1174	SIP Limit (Controlled Emissions)
	116' Elevation North and South Flux Handling System Baghouses	38	hours	1.8000	lbs/hr	N/A	N/A	0.0343	0.0078	SIP Limit (Controlled Emissions)
	North Roof Baghouse (166')	38	hours	0.5100	lbs/hr	N/A	N/A	0.0097	0.0022	SIP Limit (Controlled Emissions)
	South Roof Baghouse (166')	38	hours	0.5100	lbs/hr	N/A	N/A	0.0097	0.0022	SIP Limit (Controlled Emissions)
	Middle Roof Baghouse (166')	38	hours	0.5100	lbs/hr	N/A	N/A	0.0097	0.0022	SIP Limit (Controlled Emissions)
	Day Tank Lime Silo Baghouse	38	hours	0.8100	lbs/hr	N/A	N/A	0.0154	0.0035	SIP Modeling Limit
	Lime Dump Station Baghouse	38	hours	0.4500	lbs/hr	N/A	N/A	0.0086	0.0020	SIP Modeling Limit
	No. 1 Hot Fume Exhaust Baghouse	38	hours	5.10	lbs/hr	N/A	N/A	0.0971	0.0222	SIP Limit (Controlled Emissions)
	No. 2 Hot Fume Exhaust Baghouse	38	hours	5.10	lbs/hr	N/A	N/A	0.0971	0.0222	SIP Limit (Controlled Emissions)
	LMF 1 & 2 Material Handling System	38	hours	3.830	lbs/hr	N/A	N/A	0.0729	0.0166	SIP Limit (Controlled Emissions)
	No. 3 LMF Hot Fume Extracation Exhaust/ Material Handling System	38	hours	2.70	lbs/hr	N/A	N/A	0.0514	0.0117	SIP Limit (Controlled Emissions)
	RH Vacuum Degasser Slag Conditioning Baghouse	38	hours	5.49	lbs/hr	N/A	N/A	0.1045	0.0239	SIP Limit (Controlled Emissions)
	LMF 3 Material Handling System	38	hours	0.000	lbs/hr	N/A	N/A	0.0000	0.0000	Not Applicable
No. 2 Q-BOP Caster	Fugitives (Roof Monitor) *	20,738	molten steel	0:0041	lb/ton	95.00%	N/A	0.0006	0.0001	PM10 SIP Background Documentation for No. 2 Caster
							TOTAL EMISSIONS	3.3843	0.7727	

* - Emission unit locations where 70% containment efficiency was applied to the controlled annual change in emissions

Table 3-15a

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
FUGITIVE EMISSION CALCULATION

PM_{10}

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
No. 1 BOP Shop	Gas Cleaning System (2 units)	0	molten steel	24.40	lb/ton	99.72%	0.0000	0.0000	AP-42
	Hot Metal Desulfurization Baghouse *	0	hot metal	0.26	lb/ton	98.50%	0.0000	0.0000	AP-42
	CAS Bell Baghouse	0	molten steel	0.0640	lb/ton	94.99%	0.0000	0.0000	Source Registration Notification (April 1995)
	Flux Handling Baghouse	0	molten steel	0.0090	lb/ton	99.00%	0.0000	0.0000	AP-42
Total Fugitives (Roof Monitor - 70% Building Containment Efficiency where applicable)							0.000	0.000	
No. 2 Q-BOP Shop & LMF	Gas Cleaning System (2 units)	20,738	molten steel	24.1000	lb/ton	99.72%	0.2099	0.0479	AP-42
	Hot Metal Desulfurization Baghouse	17,627	hot metal	0.3340	lb/ton	99.40%	0.0053	0.0012	AP-42
	No. 1 Hot Fume Exhaust Baghouse	6,913	molten steel	0.17	lb/ton	94.99%	0.0088	0.0020	Gary Works No. 3 LMF CPA Addendum (April 1995)
	No. 2 Hot Fume Exhaust Baghouse	6,913	molten steel	0.17	lb/ton	94.99%	0.0088	0.0020	Gary Works No. 3 LMF CPA Addendum (April 1995)
	LMF 1 & 2 Material Handling System	13,825	molten steel	0.009	lb/ton	95.00%	0.0009	0.0002	AP-42
	No. 3 LMF Hot Fume Extracation Exhaust	6,913	molten steel	0.17	lb/ton	97.99%	0.0035	0.0008	Gary Works No. 3 LMF CPA Addendum (April 1995)
	RH Vacuum Degasser Slag Conditioning Baghouse	3,851	molten steel	0.165	lb/ton	100.00%	0.0000	0.0000	Nippon Steel Test
	LMF 3 Material Handling System	6,913	molten steel	0.009	lb/ton	97.99%	0.0002	0.0000	AP-42
	116' Elevation North and South Flux Handling Baghouse	20,738	molten steel	0.009	lb/ton	99.00%	0.0003	0.0001	Same as LMF Material Handling
	North Roof Baghouse (166')	20,738	molten steel	0.009	lb/ton	99.00%	0.0003	0.0001	Same as LMF Material Handling
	South Roof Baghouse (166')	20,738	molten steel	0.009	lb/ton	99.00%	0.0003	0.0001	Same as LMF Material Handling
	Middle Roof Baghouse (166')	20,738	molten steel	0.009	lb/ton	99.00%	0.0003	0.0001	Same as LMF Material Handling
	Day Tank Lime Silo Baghouse *	20,738	molten steel	0.009	lb/ton	99.00%	0.0009	0.0002	Same as LMF Material Handling
	Lime Dump Station Baghouse *	20,738	molten steel	0.009	lb/ton	99.00%	0.0009	0.0002	Same as LMF Material Handling
Total Fugitives (Roof Monitor - 70% Building Containment Efficiency where applicable)							0.2403	0.0549	

* - Emissions Unit Locations where 70% containment efficiency was not applicable.

Table 3-21
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM COMBUSTION SOURCES

PM_{10}

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
Blast Furnace No. 13	Stoves (NG)	7	mmcf	7.60	lb/mmcf	100.00%	0.00%	0.028	0.0064	AP-42
	Stoves (BFG)	233	mmcf	0.96	lb/mmcf	100.00%	0.00%	0.112	0.0255	Oct. 11, 2001 - Stack Test on No. 6 Boiler (100% BFG)
						Total Stoves		0.140	0.0319	
TBBH Boilers	TBBH Boilers (BFG)	649	mmcf	0.96	lb/mmcf	100.00%	0.00%	0.311	0.0711	Oct. 11, 2001 - Stack Test on No. 6 Boiler (100% BFG)
						Total Boiler House		0.311	0.071	

Table 3-16
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES
SO_2

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 13 Blast Furnace	Casthouse Fugitives	17,627	hot metal	0.329	lb/ton	99.80%	N/A	0.0058	0.0013	June 11, 2002 letter and SO2 SIP
	Casthouse Emission Control Baghouse	17,627	hot metal	0.329	lb/ton	99.80%	0.00%	2.8976	0.6616	SIP Limit and Future Production Rate
	Slag Pit Operations	4,407	slag	0.4585	lb/ton	0.00%	0.00	1.0102	0.2307	EWB Engineering Calculation
PCI	Coal Pulverizer Bldg.	2,644	coal	0.00	lb/ton	N/A	N/A	0.0000	0.0000	Not Applicable
No. 1 BOP Shop	Fugitives (Roof Monitor)					N/A	N/A	0.0000	0.0000	See SO2 Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	0	molten steel	0.00	lb/ton	0.00%	0.00%	0.0000	0.0000	Not Applicable
	Hot Metal Desulfurization Baghouse	0	hot metal	0.05	lb/ton	98.50%	0.00%	0.0000	0.0000	June 11, 2002 letter and SO2 SIP
	Continuous Casting	0	molten steel	0.00	lb/ton	0.00%	0.00%	0.0000	0.0000	Not Applicable
	CAS Bell/OB Lancing Baghouse	0	molten steel	0.0000	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	Flux Handling Baghouse	0	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
No. 1 BOP Caster	Fugitives (Roof Monitor)	0	molten steel	0.0000	lb/ton	0.00%	N/A	0.0000	0.0000	Not Applicable

Table 3-16
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES
SO_2

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 2 Q-BOP Shop LMF	Fugitives (Roof Monitor)					N/A	N/A	0.0026	0.0006	See SO2 Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	20,738	molten steel	0.0000	lb/ton	0.00%	0.00%	0.0000	0.0000	Not Applicable
	Hot Metal Desulfurization Baghouse	17,627	hot metal	0.0500	lb/ton	99.40%	0.00%	0.4380	0.1000	June 11, 2002 letter and SO2 SIP
	Continuous Casting	20,738	molten steel	0.0000	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	Secondary Emissions Baghouse	20,738	molten steel	0.0000	lb/ton	0.00%	0.00%	0.0000	0.0000	Not Applicable
	116' Elevation North and South Flux Handling System Baghouses	20,738	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	North Roof Baghouse (166')	20,738	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	South Roof Baghouse (166')	20,738	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Middle Roof Baghouse (166')	20,738	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Day Tank Lime Silo Baghouse	20,738	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Lime Dump Station Baghouse	20,738	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 1 Hot Fume Exhaust Baghouse	6,913	molten steel	0.00	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	No. 2 Hot Fume Exhaust Baghouse	6,913	molten steel	0.00	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	LMF 1 & 2 Material Handling System	13,825	molten steel	0.00	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	6,913	molten steel	0.00	lb/ton	97.99%	0.00%	0.0000	0.0000	Not Applicable
	RH Vacuum Degasser Slag Conditioning Baghouse	3,851	molten steel	0.00	lb/ton	100.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Material Handling System	6,913	molten steel	0.00	lb/ton	97.99%	0.00%	0.0000	0.0000	Not Applicable
No. 2 Q-BOP Caster	Fugitives (Roof Monitor)	20,738	molten steel	0.0000	lb/ton	95.00%	N/A	0.0000	0.0000	Not Applicable
							TOTAL EMISSIONS	4.3543	0.9941	

Table 3-16a
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
FUGITIVE EMISSION CALCULATION

SO_2

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
No. 1 BOP Shop	Gas Cleaning System (2 units)	0	molten steel	0.00	lb/ton	99.72%	0.0000	0.0000	Not Applicable
	Hot Metal Desulfurization Baghouse	0	hot metal	0.05	lb/ton	98.50%	0.0000	0.0000	Hot Metal Desulf Factor
	CAS Bell Baghouse	0	molten steel	0.0000	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	Flux Handling Baghouse	0	molten steel	0.0000	lb/ton	99.00%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.000	0.000	
No. 2 Q-BOP Shop & LMF	Gas Cleaning System (2 units)	20,738	molten steel	0.0000	lb/ton	99.72%	0.0000	0.0000	Not Applicable
	Hot Metal Desulfurization Baghouse	17,627	hot metal	0.0500	lb/ton	99.40%	0.0026	0.0006	Hot Metal Desulf Factor
	No. 1 Hot Fume Exhaust Baghouse	6,913	molten steel	0.00	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	No. 2 Hot Fume Exhaust Baghouse	6,913	molten steel	0.00	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	LMF 1 & 2 Material Handling System	13,825	molten steel	0.00	lb/ton	95.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	6,913	molten steel	0.00	lb/ton	97.99%	0.0000	0.0000	Not Applicable
	RH Vacuum Degasser Slag Conditioning Baghouse	3,851	molten steel	0.00	lb/ton	100.00%	0.0000	0.0000	Not Applicable
	LMF 3 Material Handling System	6,913	molten steel	0.00	lb/ton	97.99%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.0026	0.0006	Not Applicable

Table 3-22
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM COMBUSTION SOURCES

SO_2

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
Blast Furnace No. 13	Stoves (NG)	7	mmcf	0.60	lb/mmcf	100.00%	0.00%	0.002	0.0005	AP-42 (1998)
	Stoves (BFG)	233	mmcf	6.39	lb/mmcf	100.00%	0.00%	0.743	0.1697	IDEM SO2 Quarterly Report
						Total Stoves		0.746	0.170	
TBBH Boilers	TBBH Boilers (BFG)	649	mmcf	6.39	lb/mmcf	100.00%	0.00%	2.073	0.4732	IDEM SO2 Quarterly Report
						Total Boiler House		2.073	0.473	

Table 3-17
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES
NO_X

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 13 Blast Furnace	Casthouse Fugitives	17,627	hot metal	0.0248	lb/ton	99.80%	N/A	0.0004	0.0001	ISPAT Inland Stack Test
	Casthouse Emission Control Baghouse	17,627	hot metal	0.0248	lb/ton	99.80%	0.00%	0.2181	0.0498	ISPAT Inland Stack Test
	Slag Pit Operations	4,407	slag	0.0211	lb/ton	0.00%	0.00%	0.0465	0.0106	ISPAT Inland Permit Application
PCI	Coal Pulverizer Bldg.	2,644	coal	0.000	lb/ton	N/A	N/A	0.0000	0.0000	Not Applicable
No. 1 BOP Shop	Fugitives (Roof Monitor)					N/A	N/A	0.0000	0.0000	See NOx Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	0	molten steel	0.0800	lb/ton	99.72%	0.00%	0.0000	0.0000	AIRS
	Hot Metal Desulfurization Baghouse	0	hot metal	0.0024	lb/ton	98.50%	0.00%	0.0000	0.0000	ISPAT Inland Stack Test
	Continuous Casting	0	molten steel	0.00	lb/ton	0.00%	0.00%	0.0000	0.0000	Not Applicable
	CAS Bell/OB Lancing Baghouse	0	molten steel	0.0000	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	Flux Handling Baghouse	0	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	No combustion
No. 1 BOP Caster	Fugitives (Roof Monitor)	0	molten steel	0.0000	lb/ton	0.00%	N/A	0.0000	0.0000	Not Applicable

Table 3-17
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES
NO_X
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 2 Q-BOP Shop LMF	Fugitives (Roof Monitor)					N/A	N/A	0.0037	0.0008	See NOx Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	20,738	molten steel	0.08	lb/ton	99.72%	0.00%	0.8272	0.1889	AIRS
	Hot Metal Desulfurization	17,627	hot metal	0.0024	lb/ton	99.40%	0.00%	0.0210	0.0048	ISPAT Inland Stack Test
	Continuous Casting	20,738	molten steel	0.00	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	Secondary Emissions Baghouse	20,738	molten steel	0.0000	lb/ton	99.72%	0.00%	0.0000	0.0000	Not Applicable
	116' Elevation North and South Flux Handling System Baghouses	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	North Roof Baghouse (166')	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	South Roof Baghouse (166')	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Middle Roof Baghouse (166')	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Day Tank Lime Silo Baghouse	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Lime Dump Station Baghouse	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 1 Hot Fume Exhaust Baghouse	6,913	molten steel	0.003	lb/ton	94.99%	0.00%	0.0098	0.0022	Inland Steel EAF Shop modifications construction permit application submitted March 1994
	No. 2 Hot Fume Exhaust Baghouse	6,913	molten steel	0.003	lb/ton	94.99%	0.00%	0.0098	0.0022	Inland Steel EAF Shop modifications construction permit application submitted
	LMF 1 & 2 Material Handling System	13,825	molten steel	0.00	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	6,913	molten steel	0.003	lb/ton	97.99%	0.00%	0.0102	0.0023	Inland Steel EAF Shop modifications construction permit application submitted March 1994
	RH Vacuum Degasser Slag Conditioning Baghouse	3,851	molten steel	0.00015	lb/ton	100.00%	0.00%	0.0003	0.0001	Permit Application for PH Vacuum Degasser (October 1988)
	No. 3 LMF Material Handling System	6,913	molten steel	0.00000	lb/ton	97.99%	0.00%	0.0000	0.0000	Not Applicable
No. 2 Q-BOP Caster	Fugitives (Roof Monitor)	20,738	molten steel	0.0000	lb/ton	95.00%	N/A	0.0000	0.0000	Source registration notification submitted April 1995

Table 3-17a
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
FUGITIVE EMISSION CALCULATION

NO_X

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
No. 1 BOP Shop	Gas Cleaning System (2 units)	0	molten steel	0.08	lb/ton	99.72%	0.0000	0.0000	Gas Cleaning System Factor
	Hot Metal Desulfurization Baghouse	0	hot metal	0.0024	lb/ton	98.50%	0.0000	0.0000	Hot Metal Desulf Factor
	CAS Bell Baghouse	0	molten steel	0.0000	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	Flux Handling Baghouse	0	molten steel	0.0000	lb/ton	99.00%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.000	0.000	
No. 2 Q-BOP Shop & LMF	Gas Cleaning System (2 units)	20,738	molten steel	0.08	lb/ton	99.72%	0.0023	0.0005	Gas Cleaning System Factor
	Hot Metal Desulfurization Baghouse	17,627	hot metal	0.0024	lb/ton	99.40%	0.0001	0.0000	Hot Metal Desulf Factor
	No. 1 Hot Fume Exhaust Baghouse	6,913	molten steel	0.003	lb/ton	94.99%	0.0005	0.0001	No. 1 Hot Fume Exhaust Factor
	No. 2 Hot Fume Exhaust Baghouse	6,913	molten steel	0.003	lb/ton	94.99%	0.0005	0.0001	No. 2 Hot Fume Exhaust Factor
	LMF 1 & 2 Material Handling System	13,825	molten steel	0.00	lb/ton	95.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	6,913	molten steel	0.003	lb/ton	97.99%	0.0002	0.0000	No.3 LMF Hot Fume Extracation Factor
	RH Vacuum Degasser Slag Conditioning Baghouse	3,851	molten steel	0.00015	lb/ton	100.00%	0.0000	0.0000	RH Vacuum Degasser Factor
	LMF 3 Material Handling System	6,913	molten steel	0.00000	lb/ton	97.99%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.0037	0.0008	

Table 3-23
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM COMBUSTION SOURCES

NO_X

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
Blast Furnace No. 13	Stoves (NG)	7	mmcf	280.00	lb/mmcf	100.00%	0.00%	1.030	0.2352	AP-42 (1998)
	Stoves (BFG)	233	mmcf	0.61	lb/mmcf	100.00%	0.00%	0.071	0.0162	RATA Testing on Jan 2004
						Total Stoves		1.101	0.251	
TBBH Boilers	TBBH Boilers (BFG)	649	mmcf	0.61	lb/mmcf	100.00%	0.00%	0.198	0.0452	RATA Testing on Jan 2004
						Total Boiler House		0.20	0.05	

Table 3-18
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

CO

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 13 Blast Furnace	Casthouse Fugitives	17,627	hot metal	0.000	lb/ton	99.80%	N/A	0.0000	0.0000	Not Applicable
	Casthouse Emission Control Baghouse	17,627	hot metal	0.000	lb/ton	99.80%	0.00%	0.0000	0.0000	Not Applicable
	Slag Pit Operations	4,407	slag	0.081	lb/ton	0.00%	0.00%	0.1779	0.0406	ISPAT Inland Permit Application
PCI	Coal Pulverizer Bldg.	2,644	coal	0.000	lb/ton	N/A	N/A	0.0000	0.0000	Not Applicable
No. 1 BOP Shop	Fugitives (Roof Monitor)					N/A	N/A	0.0000	0.0000	See CO Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	0	molten steel	138.00	lb/ton	99.72%	94.35%	0.0000	0.0000	AIRS, Carbon Balance and March 1996 Stack Test
	Hot Metal Desulfurization Baghouse	0	hot metal	0.00	lb/ton	98.50%	0.00%	0.0000	0.0000	Not Applicable
	Continuous Casting	0	molten steel	0.00	lb/ton	0.00%	0.00%	0.0000	0.0000	Not Applicable
	CAS Bell/OB Lancing Baghouse	0	molten steel	0.0000	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	Flux Handling Baghouse	0	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
No. 1 BOP Caster	Fugitives (Roof Monitor)	0	molten steel	0.0000	lb/ton	0.00%	N/A	0.0000	0.0000	Not Applicable

Table 3-18
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES
CO

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 2 Q-BOP Shop LMF	Fugitives (Roof Monitor)					N/A	N/A	4.0273	0.9195	See CO Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	20,738	molten steel	138.00	lb/ton	99.72%	94.35%	80.6193	18.4062	AIRS, Carbon Balance and March 1996 Stack Test
	Hot Metal Desulfurization Baghouse	17,627	hot metal	0.00	lb/ton	99.40%	0.00%	0.0000	0.0000	Not Applicable
	Continuous Casting	20,738	molten steel	0.00	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	Secondary Emissions Baghouse	20,738	molten steel	0.00	lb/ton	99.72%	0.00%	0.0000	0.0000	Not Applicable
	116' Elevation North and South Flux Handling System Baghouses	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	North Roof Baghouse (166')	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	South Roof Baghouse (166')	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Middle Roof Baghouse (166')	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Day Tank Lime Silo Baghouse	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Lime Dump Station Baghouse	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 1 Hot Fume Exhaust Baghouse	6,913	molten steel	0.05	lb/ton	94.99%	0.00%	0.1642	0.0375	Inland Steel EAF Shop modifications construction permit application submitted March 1994
	No. 2 Hot Fume Exhaust Baghouse	6,913	molten steel	0.05	lb/ton	94.99%	0.00%	0.1642	0.0375	Inland Steel EAF Shop modifications construction permit application submitted March 1994
	LMF 1 & 2 Material Handling System	13,825	molten steel	0.00	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	6,913	molten steel	0.05	lb/ton	97.99%	0.00%	0.1693	0.0387	Inland Steel EAF Shop modifications construction permit application submitted March 1994
	RH Vacuum Degasser Slag Conditioning Baghouse	3,851	molten steel	0.887	lb/ton	100.00%	0.00%	1.7080	0.3900	Weight percent of carbon in steel before and after degassing process. Assume all carbon removed during the degassing process is converted to CO.
	No. 3 LMF Material Handling System	6,913	molten steel	0.000	lb/ton	97.99%	0.00%	0.0000	0.0000	Not Applicable
No. 2 Q-BOP Caster	Fugitives (Roof Monitor)	20,738	molten steel	0.0000	lb/ton	95.00%	N/A	0.0000	0.0000	Source registration notification submitted April 1995

Table 3-18a
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
FUGITIVE EMISSION CALCULATION

CO

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
No. 1 BOP Shop	Gas Cleaning System (2 units)	0	molten steel	138.00	lb/ton	99.72%	0.0000	0.0000	Gas Cleaning System Factor
	Hot Metal Desulfurization Baghouse	0	hot metal	0.00	lb/ton	98.50%	0.0000	0.0000	Not Applicable
	CAS Bell Baghouse	0	molten steel	0.0000	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	Flux Handling Baghouse	0	molten steel	0.0000	lb/ton	99.00%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.000	0.000	
No. 2 Q-BOP Shop & LMF	Gas Cleaning System (2 units)	20,738	molten steel	138.00	lb/ton	99.72%	4.0065	0.9147	Gas Cleaning System Factor
	Hot Metal Desulfurization Baghouse	17,627	hot metal	0.00	lb/ton	99.40%	0.0000	0.0000	Not Applicable
	No. 1 Hot Fume Exhaust Baghouse	6,913	molten steel	0.05	lb/ton	94.99%	0.0087	0.0020	No.1 Hot Furme Exhaust Factor
	No. 2 Hot Fume Exhaust Baghouse	6,913	molten steel	0.05	lb/ton	94.99%	0.0087	0.0020	No.2 Hot Fumre Exhaust Factor
	LMF 1 & 2 Material Handling System	13,825	molten steel	0.00	lb/ton	95.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	6,913	molten steel	0.05	lb/ton	97.99%	0.0035	0.0008	No.3 LMF Hot Fume Extracation Factor
	RH Vacuum Degasser Slag Conditioning Baghouse	3,851	molten steel	0.887	lb/ton	100.00%	0.00E+00	0.00E+00	RH Vacuum Degasser Factor
	LMF 3 Material Handling System	6,913	molten steel	0.000	lb/ton	97.99%	0.0000	0.0000	Not Applicable
						Total Fugitives	4.0273	0.9195	

Table 3-24
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM COMBUSTION SOURCES

CO

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
Blast Furnace No. 13	Stoves (NG)	7	mmcf	84.00	lb/mmcf	100.00%	0.00%	0.309	0.0705	AP-42 (1998)
	Stoves (BFG)	233	mmcf	26.50	lb/mmcf	100.00%	0.00%	3.083	0.7039	Stack tests at TBBH No. 4
						Total Stoves		3.392	0.774	
TBBH Boilers	TBBH Boilers (BFG)	649	mmcf	26.50	lb/mmcf	100.00%	0.00%	8.595	1.9623	Stack tests at TBBH No. 4
						Total Boiler House		8.595	1.962	

Table 3-19
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

VOC

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 13 Blast Furnace	Casthouse Fugitives	17,627	hot metal	0.0000	lb/ton	99.80%	0.00%	0.0000	0.0000	Not Applicable
	Casthouse Emission Control Baghouse	17,627	hot metal	0.00000	lb/ton	99.80%	0.00%	0.0000	0.0000	Not Applicable
	Slag Pit Operations	4,407	slag	0.00201	lb/ton	0.00%	0.00%	0.0044	0.0010	ISPAT Inland Permit Application
PCI	Coal Pulverizer Bldg.	2,644	coal	0.000	lb/ton	N/A	N/A	0.0000	0.0000	Not Applicable
No. 1 BOP Shop	Fugitives (Roof Monitor)					N/A	N/A	0.0000	0.0000	See VOC Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	0	molten steel	0.002	lb/ton	99.72%	0.00%	0.0000	0.0000	AIRS
	Hot Metal Desulfurization Baghouse	0	hot metal	0.001	lb/ton	98.50%	0.00%	0.0000	0.0000	AIRS
	Continuous Casting	0	molten steel	0.000	lb/ton	0.00%	0.00%	0.0000	0.0000	Not Applicable
	CAS Bell/OB Lancing Baghouse	0	molten steel	0.00000	lb/ton	94.99%	0.00%	0.0000	0.0000	Source registration notification submitted April 1995
	Flux Handling Baghouse	0	molten steel	0.00000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
No. 1 BOP Caster	Fugitives (Roof Monitor)	0	molten steel	0.00000	lb/ton	0.00%	N/A	0.0000	0.0000	Not Applicable

Table 3-19
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

VOC

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 2 Q-BOP Shop LMF	Fugitives (Roof Monitor)					N/A	N/A	0.0001	0.0000	See VOC Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	20,738	molten steel	0.002	lb/ton	99.72%	0.00%	0.0207	0.0047	AIRS
	Hot Metal Desulfurization Baghouse	17,627	hot metal	0.001	lb/ton	99.40%	0.00%	0.0088	0.0020	AIRS
	Continuous Casting	20,738	molten steel	0.000	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	Secondary Emissions Baghouse	20,738	molten steel	0.000	lb/ton	99.72%	0.00%	0.0000	0.0000	Not Applicable
	116' Elevation North and South Flux Handling System Baghouses	20,738	molten steel	0.000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	North Roof Baghouse (166')	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	South Roof Baghouse (166')	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Middle Roof Baghouse (166')	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Day Tank Lime Silo Baghouse	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Lime Dump Station Baghouse	20,738	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 1 Hot Fume Exhaust Baghouse	6,913	molten steel	0.000	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	No. 2 Hot Fume Exhaust Baghouse	6,913	molten steel	0.000	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	LMF 1 & 2 Material Handling System	13,825	molten steel	0.000	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	6,913	molten steel	0.000	lb/ton	97.99%	0.00%	0.0000	0.0000	Not Applicable
	RH Vacuum Degasser Slag Conditioning Baghouse	3,851	molten steel	0.000	lb/ton	100.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Material Handling System	6,913	molten steel	0.000	lb/ton	97.99%	0.00%	0.0000	0.0000	Not Applicable
No. 2 Q-BOP Caster	Fugitives (Roof Monitor)	20,738	molten steel	0.00000	lb/ton	95.00%	N/A	0.0000	0.0000	Not Applicable

* - See Table 5, Attachment 1

Table 3-19a
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
FUGITIVE EMISSION CALCULATION

VOC

All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
No. 1 BOP Shop	Gas Cleaning System (2 units)	0	molten steel	0.002	lb/ton	99.72%	0.0000	0.0000	Gas Cleaning System Factor
	Hot Metal Desulfurization Baghouse	0	hot metal	0.001	lb/ton	98.50%	0.0000	0.0000	Hot Metal Desulf Factor
	CAS Bell Baghouse	0	molten steel	0.00000	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	Flux Handling Baghouse	0	molten steel	0.00000	lb/ton	99.00%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.000	0.000	
No. 2 Q-BOP Shop & LMF	Gas Cleaning System (2 units)	20,738	molten steel	0.002	lb/ton	99.72%	0.0001	0.0000	Gas Cleaning System Factor
	Hot Metal Desulfurization Baghouse	17,627	hot metal	0.001	lb/ton	99.40%	0.0001	0.0000	Hot Metal Desulf Factor
	No. 1 Hot Fume Exhaust Baghouse	6,913	molten steel	0.000	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	No. 2 Hot Fume Exhaust Baghouse	6,913	molten steel	0.000	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	LMF 1 & 2 Material Handling System	13,825	molten steel	0.000	lb/ton	95.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	6,913	molten steel	0.000	lb/ton	97.99%	0.0000	0.0000	Not Applicable
	RH Vacuum Degasser Slag Conditioning Baghouse	3,851	molten steel	0.000	lb/ton	100.00%	0.0000	0.0000	Not Applicable
	LMF 3 Material Handling System	6,913	molten steel	0.000	lb/ton	97.99%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.0001	0.0000	Not Applicable

Table 3-25
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM COMBUSTION SOURCES
VOC

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
Blast Furnace No. 13	Stoves (NG)	7	mmcf	5.50	lb/mmcf	100.00%	0.00%	0.020	0.0046	AP-42 (1998)
	Stoves (BFG)	233	mmcf	0.00	lb/mmcf	100.00%	0.00%	0.000	0.0000	AIRS
						Total Stoves		0.020	0.005	
TBBH Boilers	TBBH Boilers (BFG)	649	mmcf	0.00	lb/mmcf	100.00%	0.00%	0.000	0.0000	AIRS
						Total Boiler House		0.000	0.000	

US STEEL GARY WORKS
CONTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE

All Additional Hot Metal Through No. 2 Q-BOP

Source Description	Change in Emission Rate (tons/yr)
No. 13 Blast Furnace Casthouse Baghouse	7.09E-04
No. 13 Blast Furnace Stoves (NG)	6.94E-03
No. 13 Blast Furnace Stoves (BFG)	1.89E-02
TBBH Boilers (BFG)	5.27E-02
No. 1 BOP HM Desulfurization Baghouse	0.00E+00
No. 1 BOP Gas Cleaner	0.00E+00
No. 1 BOP CAS Bell/OB Lancing Baghouse	0.00E+00
No. 2 Caster Mold Baghouses	7.08E-06
No. 2 QBOP HM Desulfurization Baghouse	1.20E-03
No. 2 QBOP Secondary Emissions Baghouse	4.73E-03
No. 2 QBOP Gas Cleaner	7.81E-03
No. 1 LMF Fume Exhaust Baghouse	7.17E-03
No. 2 LMF Fume Exhaust Baghouse	7.17E-03
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	3.72E-03
TOTAL HAPs (tons/yr)	**0.1111**

US STEEL GARY WORKS
CONTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant	Change in Emission Rate (tons/yr)
2,4-Dinitrotoluene	1.37E-06
2-Chloroacetophenone	3.19E-05
Acetaldehyde	2.59E-03
Acetophenone	6.83E-05
Acrolein	1.32E-03
Antimony	1.18E-04
Arsenic	3.62E-05
Benzene	5.91E-03
Benzyl Chloride	3.19E-03
Beryllium	4.41E-08
Bromoform	1.77E-04
Cadmium	2.39E-04
Carbon Disulfide	5.91E-04
Carbonyl Sulfide	4.31E-03
Chlorobenzene	1.00E-04
Chloroform	2.68E-04
Chromium	7.48E-04
Cobalt	1.00E-05
Cumene	2.41E-05
Cyanide	1.14E-02
DEHP	3.32E-04
Dichlorobenzene	4.41E-06
Dimethyl Sulfate	2.19E-04
Ethelyne Dibromide	5.38E-06
Ethelyne Dichloride	1.82E-04
Ethyl Chloride	1.91E-04
Ethylbenzene	4.28E-04
Formaldehyde	1.37E-03
HCN	1.21E-03
Hexane	6.93E-03
Isophorone	2.64E-03
Lead	2.12E-03
Manganese	3.66E-02
Mercury	2.20E-06
Methyl Bromide	7.27E-04
Methyl Chloride	2.41E-03
Methyl Chloroform (1,1,1-Trichloroethane)	6.57E-05
Methyl Ethyl Ketone (MEK)	1.78E-03
Methyl Methacryalate	9.08E-05
Methyl tert butyl ether	1.59E-04
Methylene Chloride	1.32E-03
Methylhydrazine	7.76E-04
Naphthalene	2.08E-02
Nickel	8.21E-05
Phenol	7.27E-05
POM	1.49E-06
Propionaldehyde	1.73E-03
Quinoline	7.40E-08
Selenium	8.16E-06
Styrene	1.14E-04
Tetrachloroethylene	1.96E-04
Toluene	1.11E-03
Vinyl Acetate	3.45E-05
Xylene	1.68E-04
TOTAL (tons/yr)	**0.1150**

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Antimony

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	1.77E-06	4.05E-07
No. 13 Blast Furnace Stoves (BFG)	2.33E-05	5.31E-06
TBBH Boilers (BFG)	6.49E-05	1.48E-05
No. 2 Caster Mold Baghouses	4.25E-09	9.70E-10
No. 2 QBOP HM Desulfurization Baghouse	4.80E-06	1.10E-06
No. 2 QBOP Secondary Emissions Baghouse	6.17E-06	1.41E-06
No. 2 QBOP Gas Cleaner	1.21E-05	2.77E-06
No. 1 LMF Fume Exhaust Baghouse	2.12E-06	4.84E-07
No. 2 LMF Fume Exhaust Baghouse	2.12E-06	4.84E-07
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	1.10E-06	2.51E-07
No. 1 BOP HM Desulfurization Baghouse	0.00E+00	0.00E+00
No. 1 BOP Gas Cleaner	0.00E+00	0.00E+00
No. 1 BOP CAS Bell/OB Lancing Baghouse	0.00E+00	0.00E+00
Totals	0.0001	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Arsenic

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	1.66E-06	3.78E-07
No. 2 Caster Mold Baghouses	4.70E-09	1.07E-09
No. 2 QBOP HM Desulfurization Baghouse	8.34E-06	1.90E-06
No. 2 QBOP Secondary Emissions Baghouse	3.70E-06	8.45E-07
No. 2 QBOP Gas Cleaner	1.05E-05	2.40E-06
No. 1 LMF Fume Exhaust Baghouse	4.45E-06	1.02E-06
No. 2 LMF Fume Exhaust Baghouse	4.45E-06	1.02E-06
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	2.31E-06	5.27E-07
No. 1 BOP HM Desulfurization Baghouse	0.00E+00	0.00E+00
No. 1 BOP Gas Cleaner	0.00E+00	0.00E+00
No. 1 BOP CAS Bell/OB Lancing Baghouse	0.00E+00	0.00E+00
No. 13 Blast Furnace Stoves (NG)	7.36E-07	1.68E-07
Totals	0.0000	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Benzene

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Stoves (BFG)	1.56E-03	3.56E-04
No. 13 Blast Furnace Stoves (NG)	7.72E-06	1.76E-06
TBBH Boilers (BFG)	4.35E-03	9.92E-04
Totals	0.0059	0.0013

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Beryllium

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Stoves (NG)	4.41E-08	1.01E-08
Totals	0.0000000	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Cadmium

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 2 Caster Mold Baghouses	3.32E-08	7.59E-09
No. 2 QBOP Secondary Emissions Baghouse	2.05E-04	4.68E-05
No. 2 QBOP Gas Cleaner	1.73E-05	3.95E-06
No. 1 LMF Fume Exhaust Baghouse	2.71E-06	6.19E-07
No. 2 LMF Fume Exhaust Baghouse	2.71E-06	6.19E-07
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	1.41E-06	3.21E-07
No. 1 BOP CAS Bell/OB Lancing Baghouse	0.00E+00	0.00E+00
No. 13 Blast Furnace Stoves (NG)	4.05E-06	9.24E-07
No. 13 Blast Furnace Stoves (BFG)	6.51E-07	1.49E-07
TBBH Boilers (BFG)	1.82E-06	4.15E-07
No. 13 Blast Furnace Slag Pit Operations	2.76E-06	6.30E-07
Totals	0.0002	0.0001

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Chromium

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	3.79E-05	8.64E-06
No. 2 Caster Mold Baghouses	3.92E-08	8.96E-09
No. 2 QBOP HM Desulfurization Baghouse	5.49E-05	1.25E-05
No. 2 QBOP Secondary Emissions Baghouse	2.06E-04	4.69E-05
No. 2 QBOP Gas Cleaner	2.24E-04	5.11E-05
No. 1 LMF Fume Exhaust Baghouse	5.19E-05	1.18E-05
No. 2 LMF Fume Exhaust Baghouse	5.19E-05	1.18E-05
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	2.69E-05	6.15E-06
No. 1 BOP HM Desulfurization Baghouse	0.00E+00	0.00E+00
No. 1 BOP Gas Cleaner	0.00E+00	0.00E+00
No. 1 BOP CAS Bell/OB Lancing Baghouse	0.00E+00	0.00E+00
No. 13 Blast Furnace Stoves (NG)	5.15E-06	1.18E-06
No. 13 Blast Furnace Stoves (BFG)	1.12E-05	2.55E-06
TBBH Boilers (BFG)	3.12E-05	7.12E-06
No. 13 Blast Furnace Slag Pit Operations	4.78E-05	1.09E-05
Totals	0.0007	0.0002

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Cobalt

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 2 Caster Mold Baghouses	1.97E-08	4.50E-09
No. 2 QBOP HM Desulfurization Baghouse	9.86E-07	2.25E-07
No. 2 QBOP Secondary Emissions Baghouse	3.91E-06	8.92E-07
No. 1 LMF Fume Exhaust Baghouse	1.91E-06	4.35E-07
No. 2 LMF Fume Exhaust Baghouse	1.91E-06	4.35E-07
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	9.89E-07	2.26E-07
No. 1 BOP HM Desulfurization Baghouse	0.00E+00	0.00E+00
No. 1 BOP Gas Cleaner	0.00E+00	0.00E+00
No. 1 BOP CAS Bell/OB Lancing Baghouse	0.00E+00	0.00E+00
No. 13 Blast Furnace Stoves (NG)	3.09E-07	7.05E-08
Totals	0.0000	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Dibenzofuran

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
Totals	0.00E+00	0.00E+00

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Dichlorobenzene

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Stoves (NG)	4.41E-06	1.01E-06
Totals	0.0000	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
:HANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Fluoride

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Slag Pit Operations	0.1066	0.0243
Totals	0.1066	0.0243

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Formaldehyde

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Stoves (BFG)	2.89E-04	6.59E-05
No. 13 Blast Furnace Stoves (NG)	2.76E-04	6.30E-05
TBBH Boilers (BFG)	8.04E-04	1.84E-04
Totals	0.0014	0.0003

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Hexane

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Stoves (BFG)	8.05E-05	1.84E-05
No. 13 Blast Furnace Stoves (NG)	6.62E-03	1.51E-03
TBBH Boilers (BFG)	2.24E-04	5.12E-05
Totals	0.0069	0.0016

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 1 BOP

Hazardous Air Pollutant: Hydrogen Sulfide

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Slag Granulator	0.3575	0.0816
Totals	0.3575	0.0816

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Manganese

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	6.52E-04	1.49E-04
TBBH Boilers (BFG)	2.46E-03	5.63E-04
No. 2 Caster Mold Baghouses	6.81E-06	1.56E-06
No. 2 QBOP HM Desulfurization Baghouse	1.10E-03	2.52E-04
No. 2 QBOP Secondary Emissions Baghouse	3.88E-03	8.85E-04
No. 2 QBOP Gas Cleaner	5.95E-03	1.36E-03
No. 1 LMF Fume Exhaust Baghouse	7.09E-03	1.62E-03
No. 2 LMF Fume Exhaust Baghouse	7.09E-03	1.62E-03
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	3.68E-03	8.39E-04
No. 1 BOP HM Desulfurization Baghouse	0.00E+00	0.00E+00
No. 1 BOP Gas Cleaner	0.00E+00	0.00E+00
No. 1 BOP CAS Bell/OB Lancing Baghouse	0.00E+00	0.00E+00
No. 13 Blast Furnace Stoves (NG)	1.40E-06	3.19E-07
No. 13 Blast Furnace Stoves (BFG)	8.84E-04	2.02E-04
No. 13 Blast Furnace Slag Pit Operations	3.78E-03	8.62E-04
Totals	0.0366	0.0083

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Lead

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	7.84E-06	1.79E-06
No. 13 Blast Furnace Stoves (BFG)	7.79E-06	1.78E-06
TBBH Boilers (BFG)	2.17E-05	4.96E-06
No. 2 Caster Mold Baghouses	1.67E-07	3.81E-08
No. 2 QBOP HM Desulfurization Baghouse	2.40E-05	5.48E-06
No. 2 QBOP Secondary Emissions Baghouse	4.32E-04	9.87E-05
No. 2 QBOP Gas Cleaner	1.60E-03	3.65E-04
No. 1 BOP HM Desulfurization Baghouse	0.00E+00	0.00E+00
No. 1 BOP Gas Cleaner	0.00E+00	0.00E+00
No. 1 BOP CAS Bell/OB Lancing Baghouse	0.00E+00	0.00E+00
No. 13 Blast Furnace Slag Pit Operations	3.31E-05	7.55E-06
Totals	0.0021	0.0005

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Mercury

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 2 Caster Mold Baghouses	2.12E-10	4.85E-11
No. 2 QBOP Secondary Emissions Baghouse	1.22E-06	2.79E-07
No. 1 LMF Fume Exhaust Baghouse	9.74E-09	2.22E-09
No. 2 LMF Fume Exhaust Baghouse	9.74E-09	2.22E-09
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	5.05E-09	1.15E-09
No. 1 BOP CAS Bell/OB Lancing Baghouse	0.00E+00	0.00E+00
No. 13 Blast Furnace Stoves (NG)	9.56E-07	2.18E-07
Totals	2.20E-06	5.03E-07

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Naphthalene

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Stoves (BFG)	5.50E-03	1.26E-03
No. 13 Blast Furnace Stoves (NG)	2.24E-06	5.12E-07
TBBH Boilers (BFG)	1.53E-02	3.50E-03
Totals	2.08E-02	4.76E-03

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Nickel

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 1 LMF Fume Exhaust Baghouse	2.18E-05	4.98E-06
No. 2 LMF Fume Exhaust Baghouse	2.18E-05	4.98E-06
No. 3 LMF Fume Exhaust/Mat. Handling Baghouse	1.13E-05	2.58E-06
No. 13 Blast Furnace Stoves (NG)	7.72E-06	1.76E-06
No. 13 Blast Furnace Slag Pit Operations	1.94E-05	4.42E-06
Totals	0.0001	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Polycyclic Organic Matter (POM)

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	1.17E-06	2.67E-07
No. 13 Blast Furnace Stoves (NG)	3.24E-07	7.41E-08
Totals	1.49E-06	3.41E-07

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Quinoline

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	7.40E-08	1.69E-08
Totals	7.40E-08	1.69E-08

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Selenium

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Casthouse Baghouse	6.51E-06	1.49E-06
No. 2 QBOP HM Desulfurization Baghouse	1.57E-06	3.58E-07
No. 1 BOP HM Desulfurization Baghouse	0.00E+00	0.00E+00
No. 13 Blast Furnace Stoves (NG)	8.83E-08	2.02E-08
Totals	0.0000	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CHANGE IN HAZARDOUS AIR POLLUTANTS EMISSION RATE
All Additional Hot Metal Through No. 2 Q-BOP

Hazardous Air Pollutant: Toluene

Source Description	Change in Emission Rate	
	(tons/yr)	(lbs/hr)
No. 13 Blast Furnace Stoves (BFG)	2.89E-04	6.59E-05
No. 13 Blast Furnace Stoves (NG)	1.25E-05	2.86E-06
TBBH Boilers (BFG)	8.04E-04	1.84E-04
Totals	1.11E-03	2.52E-04

Table A3 - O
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit: Iron Producing
Emission Location: No. 13 Blast Furnace Casthouse Baghouse

Change in PM_{10} Emission Rate (tons/yr)	0.15

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.001200%	0.00000	0.00000
Arsenic	0.001120%	0.00000	0.00000
Chromium	0.025600%	0.00004	0.00001
Lead	0.005300%	0.00001	0.00000
Manganese	0.441000%	0.00065	0.00015
Selenium	0.004400%	0.00001	0.00000
POM	0.000790%	0.00000	0.00000
Quinoline	0.000050%	0.00000	0.00000
	Totals	0.00071	0.00016

Table A3 - P
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM COMBUSTION SOURCES
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit: No. 13 Blast Furnace
Emission Location: Stoves (NG)

Change in Natural Gas Consumption (MMSCF/yr)	7.36

Hazardous Air Pollutant	Emission Factor (lb/MMSCF)[1]	Change in HAP Emission Rate	
		(tons/yr)	(lbs/hr)
Non-POMs			
Benzene	2.10E-03	7.72E-06	1.76E-06
Dichlorobenzene	1.20E-03	4.41E-06	1.01E-06
Formaldehyde	7.50E-02	2.76E-04	6.30E-05
Hexane	1.80E+00	6.62E-03	1.51E-03
Naphthalene	6.10E-04	2.24E-06	5.12E-07
Toluene	3.40E-03	1.25E-05	2.86E-06
Subtotal Non-POMs		*6.92E-03*	*1.58E-03*
POMs			
2-Methylnaphthalene	2.40E-05	8.83E-08	2.02E-08
3-Methylchloranthrene	1.80E-06	6.62E-09	1.51E-09
7,12-Dimethylbenz(a)-anthracene	1.60E-05	5.89E-08	1.34E-08
Acenaphthene	1.80E-06	6.62E-09	1.51E-09
Acenaphthylene	1.80E-06	6.62E-09	1.51E-09
Anthracene	2.40E-06	8.83E-09	2.02E-09
Benz(a)anthracene	1.80E-06	6.62E-09	1.51E-09
Benzo(a)pyrene	1.20E-06	4.41E-09	1.01E-09
Benzo(b)fluoranthene	1.80E-06	6.62E-09	1.51E-09
Benzo(g,h,I)perylene	1.20E-06	4.41E-09	1.01E-09
Benzo(k)fluoranthene	1.80E-06	6.62E-09	1.51E-09
Chrysene	1.80E-06	6.62E-09	1.51E-09
Dibenzo(a,h)anthracene	1.20E-06	4.41E-09	1.01E-09
Fluoranthene	3.00E-06	1.10E-08	2.52E-09
Fluorene	2.80E-06	1.03E-08	2.35E-09
Indeno(1,2,3-cd)pyrene	1.80E-06	6.62E-09	1.51E-09
Phenanathrene	1.70E-05	6.25E-08	1.43E-08
Pyrene	5.00E-06	1.84E-08	4.20E-09
Subtotal POMs		*3.24E-07*	*7.41E-08*
Metallic HAPs			
Arsenic	2.00E-04	7.36E-07	1.68E-07
Beryllium	1.20E-05	4.41E-08	1.01E-08
Cadmium	1.10E-03	4.05E-06	9.24E-07
Chromium	1.40E-03	5.15E-06	1.18E-06
Cobalt	8.40E-05	3.09E-07	7.05E-08
Manganese	3.80E-04	1.40E-06	3.19E-07
Mercury	2.60E-04	9.56E-07	2.18E-07
Nickel	2.10E-03	7.72E-06	1.76E-06
Selenium	2.40E-05	8.83E-08	2.02E-08
Subtotal Metallic HAPs		*2.05E-05*	*4.67E-06*
	Total HAPs	**6.94E-03**	**1.59E-03**

[1] Emission Factors specified in EPA's AP-42 Section 1.4, July 1998 for Natural Gas Combustio

Table A3 - Q
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM COMBUSTION SOURCES
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit: No. 13 Blast Furnace
Emission Location: Stoves (BFG)

Change in Blast Furnace Gas Consumption (MMSCF/yr)	233

Hazardous Air Pollutant	Emission Factor (lb/MMSCF)[1]	Change in HAP Emission Rate	
		(tons/yr)	(lbs/hr)
Non-POM HAPs			
Acetaldehyde	5.88E-03	6.84E-04	1.56E-04
Acetophenone	1.55E-04	1.80E-05	4.12E-06
Acrolein	3.00E-03	3.49E-04	7.97E-05
Benzene	1.34E-02	1.56E-03	3.56E-04
Benzyl Chloride	7.23E-03	8.41E-04	1.92E-04
DEHP	7.54E-04	8.77E-05	2.00E-05
Bromoform	4.02E-04	4.68E-05	1.07E-05
Carbon Disulfide	1.34E-03	1.56E-04	3.56E-05
Carbonyl Sulfide	9.78E-03	1.14E-03	2.60E-04
2-Chloroacetophenone	7.25E-05	8.43E-06	1.93E-06
Chlorobenzene	2.27E-04	2.64E-05	6.03E-06
Chloroform	6.09E-04	7.08E-05	1.62E-05
Cumene	5.48E-05	6.38E-06	1.46E-06
Dimethyl Sulfate	4.96E-04	5.77E-05	1.32E-05
2,4-Dinitrotoluene	3.10E-06	3.61E-07	8.23E-08
Ethylbenzene	9.71E-04	1.13E-04	2.58E-05
Ethyl Chloride	4.34E-04	5.05E-05	1.15E-05
Ethelyne Dibromide	1.22E-05	1.42E-06	3.24E-07
Ethelyne Dichloride	4.13E-04	4.80E-05	1.10E-05
Formaldehyde	2.48E-03	2.89E-04	6.59E-05
Hexane	6.92E-04	8.05E-05	1.84E-05
Isophorone	5.99E-03	6.97E-04	1.59E-04
Methyl Bromide	1.65E-03	1.92E-04	4.38E-05
Methyl Chloride	5.47E-03	6.36E-04	1.45E-04
Methyl Chloroform (1,1,1-Trichloroethane)	1.49E-04	1.73E-05	3.96E-06
Methyl Ethyl Ketone (MEK)	4.03E-03	4.69E-04	1.07E-04
Methylhydrazine	1.76E-03	2.05E-04	4.67E-05
Methyl Methacrylate	2.06E-04	2.40E-05	5.47E-06
Methyl tert butyl ether	3.61E-04	4.20E-05	9.59E-06
Methylene Chloride	3.00E-03	3.49E-04	7.97E-05
Naphthalene	4.73E-02	5.50E-03	1.26E-03
Phenol	1.65E-04	1.92E-05	4.38E-06
Propionaldehyde	3.92E-03	4.56E-04	1.04E-04
Styrene	2.58E-04	3.00E-05	6.85E-06
Tetrachloroethylene	4.44E-04	5.17E-05	1.18E-05
Toluene	2.48E-03	2.89E-04	6.59E-05
Vinyl Acetate	7.83E-05	9.11E-06	2.08E-06
Xylene	3.82E-04	4.44E-05	1.01E-05
Subtotal of Non-POMs HAPs		*1.47E-02*	*3.35E-03*
Metallic HAPs			
Antimony	2.00E-04	2.33E-05	5.31E-06
Cadmium	5.60E-06	6.51E-07	1.49E-07
Chromium	9.61E-05	1.12E-05	2.55E-06
Cyanide	2.58E-02	3.00E-03	6.85E-04
HCN	2.74E-03	3.19E-04	7.28E-05
Lead	6.70E-05	7.79E-06	1.78E-06
Manganese	7.60E-03	8.84E-04	2.02E-04
Subtotal Metallic HAPs		*4.25E-03*	*9.70E-04*
	Totals	**1.89E-02**	**4.32E-03**

[1] Emission Factors from Ispat Inland HAPs Inventory

Table A3 - R
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM COMBUSTION SOURCES
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit: TBBH Boilers
Emission Location: TBBH Boilers (BFG)

Change in Blast Furnace Gas Consumption (MMSCF/yr)	649

Hazardous Air Pollutant	Emission Factor (lb/MMSCF)[1]	Change in HAP Emission Rate	
		(tons/yr)	(lbs/hr)
Non-POM HAPs			
Acetaldehyde	5.88E-03	1.91E-03	4.35E-04
Acetophenone	1.55E-04	5.03E-05	1.15E-05
Acrolein	3.00E-03	9.73E-04	2.22E-04
Benzene	1.34E-02	4.35E-03	9.92E-04
Benzyl Chloride	7.23E-03	2.34E-03	5.35E-04
DEHP	7.54E-04	2.45E-04	5.58E-05
Bromoform	4.02E-04	1.30E-04	2.98E-05
Carbon Disulfide	1.34E-03	4.35E-04	9.92E-05
Carbonyl Sulfide	9.78E-03	3.17E-03	7.24E-04
2-Chloroacetophenone	7.25E-05	2.35E-05	5.37E-06
Chlorobenzene	2.27E-04	7.36E-05	1.68E-05
Chloroform	6.09E-04	1.98E-04	4.51E-05
Cumene	5.48E-05	1.78E-05	4.06E-06
Dimethyl Sulfate	4.96E-04	1.61E-04	3.67E-05
2,4-Dinitrotoluene	3.10E-06	1.01E-06	2.30E-07
Ethylbenzene	9.71E-04	3.15E-04	7.19E-05
Ethyl Chloride	4.34E-04	1.41E-04	3.21E-05
Ethelyne Dibromide	1.22E-05	3.96E-06	9.03E-07
Ethelyne Dichloride	4.13E-04	1.34E-04	3.06E-05
Formaldehyde	2.48E-03	8.04E-04	1.84E-04
Hexane	6.92E-04	2.24E-04	5.12E-05
Isophorone	5.99E-03	1.94E-03	4.44E-04
Methyl Bromide	1.65E-03	5.35E-04	1.22E-04
Methyl Chloride	5.47E-03	1.77E-03	4.05E-04
Methyl Chloroform (1,1,1-Trichloroethane)	1.49E-04	4.83E-05	1.10E-05
Methyl Ethyl Ketone (MEK)	4.03E-03	1.31E-03	2.98E-04
Methylhydrazine	1.76E-03	5.71E-04	1.30E-04
Methyl Methacrylate	2.06E-04	6.68E-05	1.53E-05
Methyl tert butyl ether	3.61E-04	1.17E-04	2.67E-05
Methylene Chloride	3.00E-03	9.73E-04	2.22E-04
Naphthalene	4.73E-02	1.53E-02	3.50E-03
Phenol	1.65E-04	5.35E-05	1.22E-05
Propionaldehyde	3.92E-03	1.27E-03	2.90E-04
Styrene	2.58E-04	8.37E-05	1.91E-05
Tetrachloroethylene	4.44E-04	1.44E-04	3.29E-05
Toluene	2.48E-03	8.04E-04	1.84E-04
Vinyl Acetate	7.83E-05	2.54E-05	5.80E-06
Xylene	3.82E-04	1.24E-04	2.83E-05
Subtotal of Non-POMs HAPs		*4.09E-02*	*9.33E-03*
Metallic HAPs			
Antimony	2.00E-04	6.49E-05	1.48E-05
Cadmium	5.60E-06	1.82E-06	4.15E-07
Chromium	9.61E-05	3.12E-05	7.12E-06
Cyanide	2.58E-02	8.37E-03	1.91E-03
HCN	2.74E-03	8.89E-04	2.03E-04
Lead	6.70E-05	2.17E-05	4.96E-06
Manganese	7.60E-03	2.46E-03	5.63E-04
Subtotal Metallic HAPs		*1.18E-02*	*2.70E-03*
	Totals	**5.27E-02**	**1.20E-02**

[1] Emission Factors from Ispat Inland HAPs Inventory

Table A3 -S
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit: Steel Producing
Emission Location: No. 1 BOP HM Desulfurization Baghouse

Change in PM_{10} Emission Rate (tons/yr)	0.00

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.001900%	0.00000	0.00000
Arsenic	0.003300%	0.00000	0.00000
Chromium	0.021700%	0.00000	0.00000
Cobalt	0.000390%	0.00000	0.00000
Lead	0.009500%	0.00000	0.00000
Manganese	0.437000%	0.00000	0.00000
Selenium	0.000620%	0.00000	0.00000
	Totals	0.00000	0.00000

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Table A3 - T
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit: Steel Producing
Emission Location: No. 1 BOP Gas Cleaner

Change in PM_{10} Emission Rate (tons/yr)	0.00

Hazardous Air Pollutant	Weight Percent of HAP in Sludge	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.001000%	0.00000	0.00000
Arsenic	0.000490%	0.00000	0.00000
Chromium	0.025700%	0.00000	0.00000
Cobalt	0.000200%	0.00000	0.00000
Lead	0.094000%	0.00000	0.00000
Manganese	0.478000%	0.00000	0.00000
	Totals	0.00000	0.00000

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Table A3 - U
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit: Steel Producing
Emission Location: No. 1 BOP CAS Bell/OB Lancing Baghouse

Change in PM_{10} Emission Rate (tons/yr)	0.00

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.000740%	0.00000	0.00000
Arsenic	0.002500%	0.00000	0.00000
Cadmium	0.014200%	0.00000	0.00000
Chromium	0.034800%	0.00000	0.00000
Cobalt	0.000810%	0.00000	0.00000
Lead	0.290000%	0.00000	0.00000
Manganese	2.250000%	0.00000	0.00000
Mercury	0.000017%	0.00000	0.00000
	Totals	0.00000	0.00000

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Table A3 - V
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit: Steel Producing
Emission Location: No. 2 Caster Mold Baghouses

Change in PM_{10} Emission Rate (tons/yr)	0.00

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.000560%	0.00000	0.00000
Arsenic	0.000620%	0.00000	0.00000
Cadmium	0.004380%	0.00000	0.00000
Chromium	0.005170%	0.00000	0.00000
Cobalt	0.002600%	0.00000	0.00000
Lead	0.022000%	0.00000	0.00000
Manganese	0.898000%	0.00001	0.00000
Mercury	0.000028%	0.00000	0.00000
	Totals	0.00001	0.00000

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Table A3 - W
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit: Steel Producing
Emission Location: No. 2 QBOP HM Desulfurization Baghouse

Change in PM_{10} Emission Rate (tons/yr)	0.25

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.001900%	0.00000	0.00000
Arsenic	0.003300%	0.00001	0.00000
Chromium	0.021700%	0.00005	0.00001
Cobalt	0.000390%	0.00000	0.00000
Lead	0.009500%	0.00002	0.00001
Manganese	0.437000%	0.00110	0.00025
Selenium	0.000620%	0.00000	0.00000
	Totals	0.00120	0.00027

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Table A3 - X
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit: Steel Producing
Emission Location: No. 2 QBOP Secondary Emissions Baghouse

Change in PM_{10} Emission Rate (tons/yr)	0.51

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.001200%	0.00001	0.00000
Arsenic	0.000720%	0.00000	0.00000
Cadmium	0.039900%	0.00021	0.00005
Chromium	0.040000%	0.00021	0.00005
Cobalt	0.000760%	0.00000	0.00000
Lead	0.084100%	0.00043	0.00010
Manganese	0.754000%	0.00388	0.00088
Mercury	0.000238%	0.00000	0.00000
	Totals	0.00473	0.00108

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Table A3 - Y
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit: Steel Producing
Emission Location: No. 2 QBOP Gas Cleaner

Change in PM_{10} Emission Rate (tons/yr)	1.33

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.000910%	0.00001	0.00000
Arsenic	0.000790%	0.00001	0.00000
Cadmium	0.001300%	0.00002	0.00000
Chromium	0.016800%	0.00022	0.00005
Lead	0.120000%	0.00160	0.00036
Manganese	0.447000%	0.00595	0.00136
	Totals	0.00781	0.00178

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Table A3 - Z
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit: Steel Producing
Emission Location: No. 1 LMF Fume Exhaust Baghouse

Change in PM_{10} Emission Rate (tons/yr)	0.11

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.002000%	0.00000	0.00000
Arsenic	0.004200%	0.00000	0.00000
Cadmium	0.002560%	0.00000	0.00000
Chromium	0.049000%	0.00005	0.00001
Cobalt	0.001800%	0.00000	0.00000
Manganese	6.690000%	0.00709	0.00162
Mercury	0.000009%	0.00000	0.00000
Nickel	0.020600%	0.00002	0.00000
	Totals	0.00717	0.00164

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Table A3 - AA
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit: Steel Producing
Emission Location: No. 2 LMF Fume Exhaust Baghouse

Change in PM_{10} Emission Rate (tons/yr)	0.11

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.002000%	0.00000	0.00000
Arsenic	0.004200%	0.00000	0.00000
Cadmium	0.002560%	0.00000	0.00000
Chromium	0.049000%	0.00005	0.00001
Cobalt	0.001800%	0.00000	0.00000
Manganese	6.690000%	0.00709	0.00162
Mercury	0.000009%	0.00000	0.00000
Nickel	0.020600%	0.00002	0.00000
	Totals	0.00717	0.00164

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Table A3 - BB
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit: Steel Producing
Emission Location: No. 3 LMF Fume Exhaust/Mat. Handling Baghouse

Change in PM_{10} Emission Rate (tons/yr)	0.05

Hazardous Air Pollutant	Weight Percent of HAP in Dust	HAP Emission Rate (Based on PM10)	
		(tons/yr)	(lbs/hr)
Antimony	0.002000%	0.00000	0.00000
Arsenic	0.004200%	0.00000	0.00000
Cadmium	0.002560%	0.00000	0.00000
Chromium	0.049000%	0.00003	0.00001
Cobalt	0.001800%	0.00000	0.00000
Manganese	6.690000%	0.00368	0.00084
Mercury	0.000009%	0.00000	0.00000
Nickel	0.020600%	0.00001	0.00000
	Totals	0.00372	0.00085

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Table A3 - DD
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
NO. 13 BLAST FURNACE RELINE
CALCULATION OF CHANGE IN HAZARDOUS AIR POLLUTANTS
EMISSION RATE FROM PROCESS SOURCES
All Additional Hot Metal Through The No. 1 BOP

Emission Unit: Steel Producing
Emission Location: No. 13 Blast Furnace Slag Pit Operations

Annual Production/Throughput Change = 4,407 tons slag

Hazardous Air Pollutant	Emission Factor (lb/ton slag)	HAP Emission Rate (tons/yr)	HAP Emission Rate (lbs/hr)
Cadmium	1.25E-06	0.00000	0.00000
Chromium	2.17E-05	0.00005	0.00001
Fluorides	4.84E-02	0.10664	0.02435
Hydrogen Cyanide	1.22E-06	0.00000	0.00000
Hydrogen Sulfide	1.62E-01	0.35750	0.08162
Lead	1.50E-05	0.00003	0.00001
Manganese	1.71E-03	0.00378	0.00086
Nickel	8.79E-06	0.00002	0.00000
	Totals	0.4680222	0.1068544

TABLE 4-1
U.S. STEEL - GARY WORKS
NO. 14 BLAST FURNACE RELINE PROJECT
CONSTRUCTION PERMIT APPLICATION
FOR 17,627 TONS/YR HOT METAL THROUGHPUT INCREMENT

Estimated Increases in Emissions of Relevant
Regulated Air Pollutants Compared to Significant
Emissions (Major Source Modification) Thresholds

Pollutant	Estimated Emissions Increases tons/yr		Significant Emissions Thresholds tons/yr
	Case I[1]	Case II[1]	
Particulate Matter (PM)	3.514	4.219	25
Particulate Matter (PM_{10})	2.144	3.837	15
Sulfur Dioxide (SO_2)	7.172	7.172	40
Oxides of Nitrogen (NOx)	2.415	2.446	40
Carbon Monoxide (CO)	96.791	99.017	100
Volatile Organic Compounds (VOC)	0.054	0.054	15.44[2]
Lead (Pb)	0.0008	0.002	0.6
Hydrogen Sulfide (H_2S)	0.357	0.357	10
Fluorides (F)	0.107	0.107	3
Beryllium (Be)	4.4E-08	4.4E-08	0.0004
Mercury (Hg)	9.7E-07	2.2E-06	0.1
Individual HAP	0.021	0.037	10
Total HAPs	0.090	0.115	25

(1) Assumes all additional hot metal produced at No. 14 Blast Furnace is processed through:

Case I - No. 1 BOP Shop
Case II - No. 2 Q-BOP Shop

(2) Remainder in the USS - Gary Works VOC Diminimis Account prior to the No. 13 Blast Furnace Reline Project (total of all previous increases) in calendar years 2000 through 2004 to date. Total increases including project is less than 25 tons VOC/yr major source modification threshold in severe ozone non-attainment area.

U.S. STEEL - GARY WORKS
NO. 14 BLAST FURNACE RELINE PROJECT
CONSTRUCTION PERMIT APPLICATION
FOR 17,627 TONS/YR HOT METAL THROUGHPUT INCREMENT

Estimated Increases in Emissions of Relevant Regulated Air Pollutants Compared to Significant Emissions (Major Source Modification) Thresholds

Pollutant	Estimated Emissions Increases tons/yr		Significant Emissions Thresholds[2] tons/yr	Exemption Levels[2] tons/yr
	Case I[1]	Case II[1]		
Particulate Matter (PM)	3.514	4.219	25	5
Particulate Matter (PM_{10})	2.144	3.837	15	5
Sulfur Dioxide (SO_2)	7.172	7.172	40	10
Oxides of Nitrogen (NO_x)	2.415	2.446	40	10
Carbon Monoxide (CO)	96.791	99.017	100	Unclassified
Volatile Organic Compounds (VOC)	0.054	0.054	15.44[3]	10
Lead (Pb)	0.0008	0.002	0.6	Unclassified
Hydrogen Sulfide (H_2S)	0.357	0.357	10	Unclassified
Fluorides (F)	0.107	0.107	3	Unclassified
Beryllium (Be)	4.4E-08	4.4E-08	0.0004	Unclassified
Mercury (Hg)	9.7E-07	2.2E-06	0.1	Unclassified
Individual HAP	0.021	0.037	10	Unclassified
Total HAPs	0.090	0.115	25	Unclassified

(1) Assumes all additional hot metal produced at No. 14 Blast Furnace is processed through:

Case I - No. 1 BOP Shop
Case II - No. 2 Q-BOP Shop

(2) 326 IAC 2-13-1, Interim Operating Permit Revision Approvals, allows interim construction approval in nonattainment areas when emissions would be below the significance threshold and would not require a permit revision for the nonattainment pollutant.

(3) Remainder in the USS - Gary Works VOC Diminimis Account prior to the No. 13 Blast Furnace Reline Project (total of all previous increases) in calendar years 2000 through 2004 to date. Total increases including project is less than 25 tons VOC/yr major source modification threshold in severe ozone non-attainment area.

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
EMISSION RATES FOR GASEOUS AIR POLLUTANTS
NO. 13 BLAST FURNACE FUTURE HOT METAL PRODUCTION RATE (TONS/DAY):
8,378
All Additional Hot Metal Through The #1 BOP

Emission Unit	PM_{10}		PM		SO_2		CO		NO_X		VOC	
	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr
No. 13 Blast Furnace	0.88	0.20	1.24	0.28	4.66	1.06	3.57	0.82	1.37	0.31	0.02	0.01
TBBH Boilers	0.31	0.07	0.94	0.21	2.07	0.47	8.59	1.96	0.20	0.05	0.00	0.00
PCI	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 1 BOP Shop	0.93	0.21	1.28	0.29	0.44	0.10	84.63	19.32	0.85	0.19	0.03	0.01
No. 1 BOP Caster	0.01	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 2 Q-BOP Shop LMF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 2 Q-BOP Caster	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	2.144	0.489	3.514	0.802	7.172	1.638	96.791	22.098	2.415	0.551	0.054	0.012

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES
NO. 13 BLAST FURNACE FUTURE HOT METAL PRODUCTION RATE (TONS/DAY):
8,378
All Additional Hot Metal Through No. 2 Q-BOP

Emission Unit	Emission Location	Emissions Increase			
		PM_{10}		CO	NO_X
		tons/yr	lbs/hr	lbs/hr	lbs/hr
Blast Furnace No.13	Casthouse Baghouse	0.1463	0.0334	0.0000	0.0498
	Casthouse Baghouse (Roof Monitor)	0.0016	0.0004	0.0000	0.0001
	Slag Pit Operations	0.5942	0.1357	0.0406	0.0106
	Stoves (NG)	0.0280	0.0064	0.0705	0.2352
	Stoves (BFG)	0.1117	0.0255	0.7039	0.0162
TBBH Boilers	TBBH Boilers (BFG)	0.3114	0.0711	1.9623	0.0452
PCI	Coal Pulverizer Bldg.	0.0093	0.0021	0.0000	0.0000
No. 1 BOP	Gas Cleaning Systems	0.0000	0.0000	0.0000	0.0000
	Gas Cleaning Systems (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
	Hot Metal Desulf Baghouse	0.0000	0.0000	0.0000	0.0000
	Hot Metal Desulf Baghouse (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
	Continuous Casting	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CAS Bell Baghouse	0.0000	0.0000	0.0000	0.0000
	CAS Bell Baghouse (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
	Flux Handling Baghouse	0.0000	0.0000	0.0000	0.0000
	Flux Handling Baghouse (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
No. 1 BOP Caster	Fugitives (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
No. 2 Q-BOP	Gas Cleaning Systems	1.1216	0.2561	18.4062	0.1889
	Gas Cleaning Systems (Roof Monitor)	0.2099	0.0479	0.9147	0.0005
	Hot Metal Desulf Baghouse	0.2475	0.0565	0.0000	0.0048
	Hot Metal Desulf Baghouse (Roof Monitor)	0.0053	0.0012	0.0000	0.0000
	Continuous Casting	1.21E-04	2.77E-05	0.00E+00	0.00E+00
	Secondary Emissions Baghouse	0.5140	0.1174	0.0000	0.0000
	116' Elevation North and South Flux Handling System Baghouses	0.0343	0.0078	0.0000	0.0000
	116' Elevation North and South Flux Handling System Baghouses (Roof Monitor)	0.0003	0.0001	0.0000	0.0000
	North Roof Baghouse (166')	0.0097	0.0022	0.0000	0.0000
	North Roof Baghouse (166') (Roof Monitor)	0.0003	0.0001	0.0000	0.0000
	South Roof Baghouse (166')	0.0097	0.0022	0.0000	0.0000
	South Roof Baghouse (166') (Roof Monitor)	0.0003	0.0001	0.0000	0.0000
	Middle Roof Baghouse (166')	0.0097	0.0022	0.0000	0.0000
	Middle Roof Baghouse (166') (Roof Monitor)	0.0003	0.0001	0.0000	0.0000
	Day Tank Lime Silo Baghouse	0.0154	0.0035	0.0000	0.0000
	Day Tank Lime Silo Baghouse (Roof	0.0009	0.0002	0.0000	0.0000
	Lime Dump Station Baghouse	0.0086	0.0020	0.0000	0.0000
	Lime Dume Station Baghouse (Roof	0.0009	0.0002	0.0000	0.0000
	No. 1 Hot Fume Exhaust Baghouse	0.0971	0.0222	0.0375	0.0022
	No. 1 Hot Fume Exhaust Baghouse (Roof Monitor)	0.0088	0.0020	0.0020	0.0001
	No. 2 Hot Fume Exhaust Baghouse	0.0971	0.0222	0.0375	0.0022
	No. 2 Hot Fume Exhaust Baghouse (Roof Monitor)	0.0088	0.0020	0.0020	0.0001
	No. 1&2 Material Handling System	0.0729	0.0166	0.0000	0.0000
	No. 1 & 2 Material Handling System (Roof Monitor)	0.0009	0.0002	0.0000	0.0000
	No. 3 LMF Hot Fume Extraction Exhaust/ Material Handling System	0.0514	0.0117	0.0387	0.0023
	No. 3 LMF Hot Fume Extraction Exhaust/ Material Handling System (Roof Monitor)	0.0035	0.0008	0.0008	0.0000
	RH Vacuum Degasser Slag Conditioning Baghouse	0.1045	0.0239	0.3900	0.0001
	RH Vacuum Degasser Slag Conditioning Baghouse (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
No. 2 Q-BOP Caster	Fugitives (Roof Monitor)	0.0006	0.0001	0.0000	0.0000

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES
NO. 13 BLAST FURNACE FUTURE HOT METAL PRODUCTION RATE (TONS/DAY):
B,37B
All Additional Hot Metal Through the #1 BOP

Emission Unit	Emission Location	Emissions Increase			
		PM_{10}		CO	NO_X
		tons/yr	lbs/hr	lbs/hr	lbs/hr
Blast Furnace No.13	Casthouse Baghouse	0.1463	0.0334	0.0000	0.0498
	Casthouse Baghouse (Roof Monitor)	0.0016	0.0004	0.0000	0.0001
	Slag Pit Operations	0.5942	0.1357	0.0406	0.0106
	Stoves (NG)	0.0280	0.0064	0.0705	0.2352
	Stoves (BFG)	0.1117	0.0255	0.7039	0.0162
TBBH Boilers	TBBH Boilers (BFG)	0.3114	0.0711	1.9623	0.0452
PCI	Coal Pulverizer Bldg.	0.0093	0.0021	0.0000	0.0000
No. 1 BOP	Gas Cleaning Systems	0.2523	0.0576	18.4062	0.1889
	Gas Cleaning Systems (Roof Monitor)	0.2125	0.0485	0.9147	0.0005
	Hot Metal Desulf Baghouse	0.2856	0.0652	0.0000	0.0048
	Hot Metal Desulf Baghouse (Roof Monitor)	0.0344	0.0078	0.0000	0.0001
	Continuous Casting	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CAS Bell Baghouse	0.0971	0.0222	0.0000	0.0000
	CAS Bell Baghouse (Roof Monitor)	0.0100	0.0023	0.0000	0.0000
	Flux Handling Baghouse	0.0366	0.0083	0.0000	0.0000
	Flux Handling Baghouse (Roof Monitor)	0.0003	0.0001	0.0000	0.0000
No. 1 BOP Caster	Fugitives (Roof Monitor)	0.0128	0.0029	0.0000	0.0000
No. 2 Q-BOP	Gas Cleaning Systems	0.0000	0.0000	0.0000	0.0000
	Gas Cleaning Systems (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
	Hot Metal Desulf Baghouse	0.0000	0.0000	0.0000	0.0000
	Hot Metal Desulf Baghouse (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
	Continuous Casting	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Secondary Emissions Baghouse	0.0000	0.0000	0.0000	0.0000
	116' Elevation North and South Flux Handling System Baghouses	0.0000	0.0000	0.0000	0.0000
	116' Elevation North and South Flux Handling System Baghouses (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
	North Roof Baghouse (166')	0.0000	0.0000	0.0000	0.0000
	North Roof Baghouse (166') (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
	South Roof Baghouse (166')	0.0000	0.0000	0.0000	0.0000
	South Roof Baghouse (166') (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
	Middle Roof Baghouse (166')	0.0000	0.0000	0.0000	0.0000
	Middle Roof Baghouse (166') (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
	Day Tank Lime Silo Baghouse	0.0000	0.0000	0.0000	0.0000
	Day Tank Lime Silo Baghouse (Roof	0.0000	0.0000	0.0000	0.0000
	Lime Dump Station Baghouse	0.0000	0.0000	0.0000	0.0000
	Lime Dume Station Baghouse (Roof	0.0000	0.0000	0.0000	0.0000
	No. 1 Hot Fume Exhaust Baghouse	0.0000	0.0000	0.0000	0.0000
	No. 1 Hot Fume Exhaust Baghouse (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
	No. 2 Hot Fume Exhaust Baghouse	0.0000	0.0000	0.0000	0.0000
	No. 2 Hot Fume Exhaust Baghouse (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
	No. 1&2 Material Handling System	0.0000	0.0000	0.0000	0.0000
	No. 1 & 2 Material Handling System (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
	No. 3 LMF Hot Fume Extraction Exhaust/ Material Handling System	0.0000	0.0000	0.0000	0.0000
	No. 3 LMF Hot Fume Extraction Exhaust/ Material Handling System (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
	RH Vacuum Degasser Slag Conditioning Baghouse	0.0000	0.0000	0.0000	0.0000
	RH Vacuum Degasser Slag Conditioning Baghouse (Roof Monitor)	0.0000	0.0000	0.0000	0.0000
No. 2 Q-BOP Caster	Fugitives (Roof Monitor)	0.0000	0.0000	0.0000	0.0000

CONSTRUCTION PERMIT APPLICATION
RELINE OF NO. 13 BLAST FURNACE
U.S. STEEL – GARY WORKS
PLANT ID NO. 089-00121

TABLES

CONSTRUCTION PERMIT APPLICATION
RELINE OF NO. 13 BLAST FURNACE
U.S. STEEL – GARY WORKS
PLANT ID NO. 089-00121

TABLES

TABLE 2-1
U.S. STEEL - GARY WORKS
NO. 13 BLAST FURNACE RELINE PROJECT
CONSTRUCTION PERMIT APPLICATION

Expected Production/Throughput Changes at Affected Facilities

Facility	Annual Production/Throughput Changes
No. 13 Blast Furnace	609,592 tons of hot metal produced
	152,398 tons of slag generated
	30,480 million standard cubic feet of gas generated
	8,047 million standard cubic feet of blast furnace gas consumed at the stoves
	254 million standard cubic feet of natural gas consumed at the stoves
	91,439 tons of pulverized coal consumed
	827,549 tons of self fluxing pellets consumed
No. 1 BOP Shop or No. 2 BOP Shop	609,592 tons of hot metal consumed*
	717,167 tons of liquid steel produced
	71,717 tons of slag generated
Pulverized Coal Injection Facility	91,439 tons of pulverized coal produced
Self-Fluxing Pellets Receipt and Handling	827,549 tons of self fluxing pellets received and handled
Turboblower Boiler House	22,433 million standard cubic feet of blast furnace gas consumed

* Two operating scenarios are being permitted
Case I – All additional hot metal processed through No. 1 BOP Shop
Case II – All additional hot metal processed through No. 2 Q-BOP Shop

TABLE 3-1
U.S. STEEL- GARYWORKS
NO. 13 BLAST FURNACE RELINE PROJECT
CONSTRUCTION PERMIT APPLICATION

Monthly Hot Metal Production at No. 13 Blast Furnace
June 1996 through May 1998

	Month	No. 13 Blast Furnace (NTHM/Mo.)
1	Jun-96	208,911
2	Jul-96	227,633
3	Aug-96	259,805
4	Sep-96	247,798
5	Oct-96	259,816
6	Nov-96	268,076
7	Dec-96	275,565
8	Jan-97	272,012
9	Feb-97	233,392
10	Mar-97	269,408
11	Apr-97	253,567
12	May-97	277,773
13	Jun-97	277,488
14	Jul-97	247,779
15	Aug-97	272,231
16	Sep-97	243,610
17	Oct-97	257,054
18	Nov-97	252,362
19	Dec-97	241,805
20	Jan-98	258,284
21	Feb-98	237,931
22	Mar-98	250,700
23	Apr-98	250,758
24	May-98	237,057
24 Month Total		6,080,815
Annual Average Tons/Yr		3,040,408

Table 3-2
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

PM

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 13 Blast Furnace	Casthouse Fugitives *	609,592	hot metal	0.60	lb/ton	99.80%	N/A	0.1097	0.0251	AP-42
	Casthouse Emission Control Baghouse	256	hours	0.0024	lb/ton	N/A	N/A	0.0003	0.0001	SIP Limit (Controlled Emissions)
	Slag Pit Operations	152,398	slag	0.106	lb/ton	0.00%	0.00%	8.0771	1.8441	ISPAT Inland Permit Application
PCI	Coal Pulverizer Bldg.	91,439	coal	0.008	lb/ton	N/A	N/A	0.3658	0.0835	Ispat Inland PCI Controlled Emission Factor
No. 1 BOP Shop	Fugitives (Roof Monitor)					N/A	N/A	16.4815	3.7629	See PM Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	717,167	molten steel	36.97	lb/ton	99.72%	99.90%	13.2197	3.0182	AP-42
	Hot Metal Desulfurization Baghouse	350	hours	15.00	lb/hr	N/A	N/A	2.6250	0.5993	SIP Limit (Controlled Emissions)
	Continuous Casting	717,167	molten steel	0.014	lb/ton	0.00%	0.00%	0.0000	0.0000	PM10 SIP Background Oocumentation for No. 2 Caster
	CAS Bell/OB Lancing Baghouse	350	hours	5.100	lb/hr	N/A	N/A	0.8925	0.2038	SIP Limit (Controlled Emissions)
	Flux Handling Baghouse	350	hours	1.920	lb/hr	N/A	N/A	0.3360	0.0767	SIP Modeling Limit
No. 1 BOP Caster	Fugitives (Roof Monitor) *	717,167	molten steel	0.014	lb/ton	0.00%	N/A	1.5061	0.3438	PM10 SIP Background Documentation for No. 2 Caster

Table 3-2
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

PM

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 2 Q-BOP Shop LMF	Fugitives (Roof Monitor)					N/A	N/A	0.0000	0.0000	See PM Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	0	molten steel	36.960	lb/ton	99.72%	99.90%	0.0000	0.0000	AP-42
	Hot Metal Desulfurization Baghouse	0	hours	13.000	lb/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	Continuous Casting *	0	molten steel	0.014	lb/ton	95.00%	99.99%	0.0000	0.0000	PM10 SIP Background Documentation for No. 2 Caster
	Secondary Emissions Baghouse	0	hours	27.000	lb/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	116' Elevation North and South Flux Handling System Baghouses	0	hours	1.800	lb/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	North Roof Baghouse (166')	0	hours	0.510	lb/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	South Roof Baghouse (166')	0	hours	0.510	lb/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	Middle Roof Baghouse (166')	0	hours	0.510	lb/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	Day Tank Lime Silo Baghouse	0	hours	0.810	lb/hr	N/A	N/A	0.0000	0.0000	SIP Modeling Limit
	Lime Dump Station Baghouse	0	hours	0.450	lb/hr	N/A	N/A	0.0000	0.0000	SIP Modeling Limit
	No. 1 Hot Fume Exhaust Baghouse	0	hours	5.100	lb/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	No. 2 Hot Fume Exhaust Baghouse	0	hours	5.1	lb/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	LMF 1 & 2 Material Handling System	0	hours	3.830	lb/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	No. 3 LMF Hot Fume Extracation Exhaust	0	hours	2.700	lb/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	RH Vacuum Degasser Slag Conditioning Baghouse	0	hours	5.490	lb/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
No. 2 Q-BOP Caster	Fugitives (Roof Monitor) *	0	molten steel	0.014	lb/ton	95.00%	N/A	0.0000	0.0000	PM10 SIP Background Documentation for No. 2 Caster

* - Emission unit locations where 70% containment efficiency was applied to the controlled annual change in emissions

Table 3-2a

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
FUGITIVE EMISSION CALCULATION

PM

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
No. 1 BOP Shop	Gas Cleaning System (2 units)	717,167	molten steel	36.96	lb/ton	99.72%	11.1327	2.5417	AP-42
	Hot Metal Desulfurization Baghouse *	609,592	hot metal	1.09	lb/ton	98.50%	4.9834	1.1378	AP-42
	CAS Bell Baghouse	717,167	molten steel	0.0640	lb/ton	94.99%	0.3449	0.0788	Source Registration Notification (April 1995)
	Flux Handling Baghouse	717,167	molten steel	0.0190	lb/ton	99.00%	0.0204	0.0047	AP-42
Total Fugitives (Roof Monitor - 70% Building Containment Efficiency where applicable)							16.482	3.763	
No. 2 Q-BOP Shop & LMF	Gas Cleaning System (2 units)	0	molten steel	36.7900	lb/ton	99.72%	0.0000	0.0000	AP-42
	Hot Metal Desulfurization Baghouse	0	hot metal	1.2590	lb/ton	99.40%	0.0000	0.0000	AP-42
	No. 1 Hot Fume Exhaust Baghouse	0	molten steel	0.17	lb/ton	94.99%	0.0000	0.0000	Gary Works No. 3 LMF CPA Addendum (April 1995)
	No. 2 Hot Fume Exhaust Baghouse	0	molten steel	0.17	lb/ton	94.99%	0.0000	0.0000	Gary Works No. 3 LMF CPA Addendum (April 1995)
	LMF 1 & 2 Material Handling System	0	molten steel	0.019	lb/ton	95.00%	0.0000	0.0000	AP-42
	No. 3 LMF Hot Fume Extracation Exhaust/ Material Handling	0	molten steel	0.17	lb/ton	97.99%	0.0000	0.0000	Gary Works No. 3 LMF CPA Addendum (April 1995)
	RH Vacuum Degasser Slag Conditioning Baghouse	0	molten steel	0.165	lb/ton	100.00%	0.0000	0.0000	Nippon Steel Test
	116' Elevation North and South Flux Handling Baghouse	0	molten steel	0.019	lb/ton	99.00%	0.0000	0.0000	Same as LMF Material Handling
	North Roof Baghouse (166')	0	molten steel	0.019	lb/ton	99.00%	0.0000	0.0000	Same as LMF Material Handling
	South Roof Baghouse (166')	0	molten steel	0.019	lb/ton	99.00%	0.0000	0.0000	Same as LMF Material Handling
	Middle Roof Baghouse (166')	0	molten steel	0.019	lb/ton	99.00%	0.0000	0.0000	Same as LMF Material Handling
	Day Tank Lime Silo Baghouse *	0	molten steel	0.019	lb/ton	99.00%	0.0000	0.0000	Same as LMF Material Handling
	Lime Dump Station Baghouse *	0	molten steel	0.019	lb/ton	99.00%	0.0000	0.0000	Same as LMF Material Handling
Total Fugitives (Roof Monitor - 70% Building Containment Efficiency where applicable)							0.0000	0.0000	

* - Emissions Unit Locations where 70% containment efficiency was not applicable.

Table 3-3

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

PM_{10}

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 13 Blast Furnace	Casthouse Fugitives *	609,592	hot metal	0.306	lb/ton	99.80%	N/A	0.0560	0.0128	AP-42
	Casthouse Emission Control Baghouse	256	hours	38.570	lbs/hr	N/A	N/A	4.9410	1.1281	SIP Limit (Controlled Emissions)
	Slag Pit Operations	152,398	slag	0.0425	lb/ton	0.00%	0.00%	3.2385	0.7394	ISPAT Inland Permit
PCI	Coal Pulverizer Bldg.	91,439	coal	0.007	lb/ton	N/A	N/A	0.3200	0.0731	Ispat Inland PCI Controlled Emission Factor
No. 1 BOP Shop	Fugitives (Roof Monitor)					N/A	N/A	8.8928	2.0303	See PM10 Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	717,167	molten steel	24.40	lb/ton	99.72%	99.90%	8.7249	1.9920	AP-42
	Hot Metal Desulfurization Baghouse	350	hours	15.00	lbs/hr	N/A	N/A	2.6250	0.5993	SIP Limit (Controlled Emissions)
	Continuous Casting	717,167	molten steel	0.0041	lb/ton	0.00%	0.00%	0.0000	0.0000	PM10 SIP Background Documentation for No. 2 Caster
	CAS Bell/OB Lancing Baghouse	350	hours	5.1000	lbs/hr	N/A	N/A	0.8925	0.2038	SIP Limit (Controlled Emissions)
	Flux Handling Baghouse	350	hours	1.9200	lbs/hr	N/A	N/A	0.3360	0.0767	SIP Modeling Limit
No. 1 BOP Caster	Fugitives (Roof Monitor) *	717,167	molten steel	0.0041	lb/ton	0.00%	N/A	0.4411	0.1007	PM10 SIP Background Documentation for No. 2 Caster

Table 3-3

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

PM_{10}

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 2 Q-BOP Shop LMF	Fugitives (Roof Monitor)					N/A	N/A	0.0000	0.0000	See PM10 Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	0	molten steel	24.1000	lb/ton	99.72%	99.62%	0.0000	0.0000	AP-42
	Hot Metal Desulfurization Baghouse	0	hours	13.0000	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	Continuous Casting *	0	molten steel	0.0041	lb/ton	95.00%	99.00%	0.00E+00	0.00E+00	PM10 SIP Background Documentation for No. 2 Caster
	Secondary Emissions Baghouse	0	hours	27.0000	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	116' Elevation North and South Flux Handling System Baghouses	0	hours	1.8000	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	North Roof Baghouse (166')	0	hours	0.5100	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	South Roof Baghouse (166')	0	hours	0.5100	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	Middle Roof Baghouse (166')	0	hours	0.5100	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	Day Tank Lime Silo Baghouse	0	hours	0.8100	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Modeling Limit
	Lime Dump Station Baghouse	0	hours	0.4500	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Modeling Limit
	No. 1 Hot Fume Exhaust Baghouse	0	hours	5.10	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	No. 2 Hot Fume Exhaust Baghouse	0	hours	5.10	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	LMF 1 & 2 Material Handling System	0	hours	3.830	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	No. 3 LMF Hot Fume Extracation Exhaust/ Material Handling System	0	hours	2.70	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
	RH Vacuum Degasser Slag Conditioning Baghouse	0	hours	5.49	lbs/hr	N/A	N/A	0.0000	0.0000	SIP Limit (Controlled Emissions)
No. 2 Q-BOP Caster	Fugitives (Roof Monitor) *	0	molten steel	0.0041	lb/ton	95.00%	N/A	0.0000	0.0000	PM10 SIP Background Documentation for No. 2 Caster

* - Emission unit locations where 70% containment efficiency was applied to the controlled annual change in emissions

Table 3-3a

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
FUGITIVE EMISSION CALCULATION

PM_{10}

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
No. 1 BOP Shop	Gas Cleaning System (2 units)	717,167	molten steel	24.40	lb/ton	99.72%	7.3495	1.6780	AP-42
	Hot Metal Desulfurization Baghouse *	609,592	hot metal	0.26	lb/ton	98.50%	1.1887	0.2714	AP-42
	CAS Bell Baghouse	717,167	molten steel	0.0640	lb/ton	94.99%	0.3449	0.0788	Source Registration Notification (April 1995)
	Flux Handling Baghouse	717,167	molten steel	0.0090	lb/ton	99.00%	0.0097	0.0022	AP-42
Total Fugitives (Roof Monitor - 70% Building Containment Efficiency where applicable)							8.893	2.030	
No. 2 Q-BOP Shop & LMF	Gas Cleaning System (2 units)	0	molten steel	24.1000	lb/ton	99.72%	0.0000	0.0000	AP-42
	Hot Metal Desulfurization Baghouse	0	hot metal	0.3340	lb/ton	99.40%	0.0000	0.0000	AP-42
	No. 1 Hot Fume Exhaust Baghouse	0	molten steel	0.17	lb/ton	94.99%	0.0000	0.0000	Gary Works No. 3 LMF CPA Addendum (April 1995)
	No. 2 Hot Fume Exhaust Baghouse	0	molten steel	0.17	lb/ton	94.99%	0.0000	0.0000	Gary Works No. 3 LMF CPA Addendum (April 1995)
	LMF 1 & 2 Material Handling System	0	molten steel	0.009	lb/ton	95.00%	0.0000	0.0000	AP-42
	No. 3 LMF Hot Fume Extracation Exhaust	0	molten steel	0.17	lb/ton	97.99%	0.0000	0.0000	Gary Works No. 3 LMF CPA Addendum (April 1995)
	RH Vacuum Degasser Slag Conditioning Baghouse	0	molten steel	0.165	lb/ton	100.00%	0.0000	0.0000	Nippon Steel Test
	LMF 3 Material Handling System	0	molten steel	0.009	lb/ton	97.99%	0.0000	0.0000	AP-42
	116' Elevation North and South Flux Handling Baghouse	0	molten steel	0.009	lb/ton	99.00%	0.0000	0.0000	Same as LMF Material Handling
	North Roof Baghouse (166')	0	molten steel	0.009	lb/ton	99.00%	0.0000	0.0000	Same as LMF Material Handling
	South Roof Baghouse (166')	0	molten steel	0.009	lb/ton	99.00%	0.0000	0.0000	Same as LMF Material Handling
	Middle Roof Baghouse (166')	0	molten steel	0.009	lb/ton	99.00%	0.0000	0.0000	Same as LMF Material Handling
	Day Tank Lime Silo Baghouse *	0	molten steel	0.009	lb/ton	99.00%	0.0000	0.0000	Same as LMF Material Handling
	Lime Dump Station Baghouse *	0	molten steel	0.009	lb/ton	99.00%	0.0000	0.0000	Same as LMF Material Handling
Total Fugitives (Roof Monitor - 70% Building Containment Efficiency where applicable)							0.0000	0.0000	

* - Emissions Unit Locations where 70% containment efficiency was not applicable.

Table 3-4

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

SO_2

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 13 Blast Furnace	Casthouse Fugitives	609,592	hot metal	0.276	lb/ton	99.80%	N/A	0.1682	0.0384	June 11, 2002 letter and SO2 SIP
	Casthouse Emission Control Baghouse	609,592	hot metal	0.276	lb/ton	99.80%	0.00%	83.9554	19.1679	SIP Limit and Future Production Rate
	Slag Pit Operations	609,592	hot metal	0.0400	lb/ton	0.00%	0.00	12.1918	2.7835	EWB Engineering Calculation
PCI	Coal Pulverizer Bldg.	91,439	coal	0.00	lb/ton	N/A	N/A	0.0000	0.0000	Not Applicable
No. 1 BOP Shop	Fugitives (Roof Monitor)					N/A	N/A	0.2286	0.0522	See SO2 Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	717,167	molten steel	0.00	lb/ton	0.00%	0.00%	0.0000	0.0000	Not Applicable
	Hot Metal Desulfurization Baghouse	609,592	hot metal	0.05	lb/ton	98.50%	0.00%	15.0112	3.4272	June 11, 2002 letter and SO2 SIP
	Continuous Casting	717,167	molten steel	0.00	lb/ton	0.00%	0.00%	0.0000	0.0000	Not Applicable
	CAS Bell/OB Lancing Baghouse	717,167	molten steel	0.0000	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	Flux Handling Baghouse	717,167	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
No. 1 BOP Caster	Fugitives (Roof Monitor)	717,167	molten steel	0.0000	lb/ton	0.00%	N/A	0.0000	0.0000	Not Applicable

Table 3-4

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

SO_2

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 2 Q-BOP Shop LMF	Fugitives (Roof Monitor)					N/A	N/A	0.0000	0.0000	See SO2 Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	0	molten steel	0.0000	lb/ton	0.00%	0.00%	0.0000	0.0000	Not Applicable
	Hot Metal Desulfurization Baghouse	0	hot metal	0.0500	lb/ton	99.40%	0.00%	0.0000	0.0000	June 11, 2002 letter and SO2 SIP
	Continuous Casting	0	molten steel	0.0000	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	Secondary Emissions Baghouse	0	molten steel	0.0000	lb/ton	0.00%	0.00%	0.0000	0.0000	Not Applicable
	116' Elevation North and South Flux Handling System Baghouses	0	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	North Roof Baghouse (166')	0	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	South Roof Baghouse (166')	0	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Middle Roof Baghouse (166')	0	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Day Tank Lime Silo Baghouse	0	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Lime Dump Station Baghouse	0	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 1 Hot Fume Exhaust Baghouse	0	molten steel	0.00	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	No. 2 Hot Fume Exhaust Baghouse	0	molten steel	0.00	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	LMF 1 & 2 Material Handling System	0	molten steel	0.00	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	0	molten steel	0.00	lb/ton	97.99%	0.00%	0.0000	0.0000	Not Applicable
	RH Vacuum Degasser Slag Conditioning Baghouse	0	molten steel	0.00	lb/ton	100.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Material Handling System	0	molten steel	0.00	lb/ton	97.99%	0.00%	0.0000	0.0000	Not Applicable
No. 2 Q-BOP Caster	Fugitives (Roof Monitor)	0	molten steel	0.0000	lb/ton	95.00%	N/A	0.0000	0.0000	Not Applicable

Table 3-4a

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
FUGITIVE EMISSION CALCULATION

SO_2

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
No. 1 BOP Shop	Gas Cleaning System (2 units)	717,167	molten steel	0.00	lb/ton	99.72%	0.0000	0.0000	Not Applicable
	Hot Metal Desulfurization Baghouse	609,592	hot metal	0.05	lb/ton	98.50%	0.2286	0.0522	Hot Metal Desulf Factor
	CAS Bell Baghouse	717,167	molten steel	0.0000	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	Flux Handling Baghouse	717,167	molten steel	0.0000	lb/ton	99.00%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.229	0.052	
No. 2 Q-BOP Shop & LMF	Gas Cleaning System (2 units)	0	molten steel	0.0000	lb/ton	99.72%	0.0000	0.0000	Not Applicable
	Hot Metal Desulfurization Baghouse	0	hot metal	0.0500	lb/ton	99.40%	0.0000	0.0000	Hot Metal Desulf Factor
	No. 1 Hot Fume Exhaust Baghouse	0	molten steel	0.00	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	No. 2 Hot Fume Exhaust Baghouse	0	molten steel	0.00	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	LMF 1 & 2 Material Handling System	0	molten steel	0.00	lb/ton	95.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	0	molten steel	0.00	lb/ton	97.99%	0.0000	0.0000	Not Applicable
	RH Vacuum Degasser Slag Conditioning Baghouse	0	molten steel	0.00	lb/ton	100.00%	0.0000	0.0000	Not Applicable
	LMF 3 Material Handling System	0	molten steel	0.00	lb/ton	97.99%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.0000	0.0000	Not Applicable

Table 3-5

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

NO_X

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 13 Blast Furnace	Casthouse Fugitives	609,592	hot metal	0.0248	lb/ton	99.80%	N/A	0.0151	0.0035	ISPAT Inland Stack Test
	Casthouse Emission Control Baghouse	609,592	hot metal	0.0248	lb/ton	99.80%	0.00%	7.5438	1.7223	ISPAT Inland Stack Test
	Slag Pit Operations	152,398	slag	0.0137	lb/ton	0.00%	0.00%	1.0439	0.2383	ISPAT Inland Permit Application
PCI	Coal Pulverizer Bldg.	91,439	coal	0.000	lb/ton	N/A	N/A	0.0000	0.0000	Not Applicable
No. 1 BOP Shop	Fugitives (Roof Monitor)					N/A	N/A	0.0913	0.0208	See NOx Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	717,167	molten steel	0.0800	lb/ton	99.72%	0.00%	28.6064	6.5311	AIRS
	Hot Metal Desulfurization Baghouse	609,592	hot metal	0.0024	lb/ton	98.50%	0.00%	0.7205	0.1645	ISPAT Inland Stack Test
	Continuous Casting	717,167	molten steel	0.00	lb/ton	0.00%	0.00%	0.0000	0.0000	Not Applicable
	CAS Bell/OB Lancing Baghouse	717,167	molten steel	0.0000	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	Flux Handling Baghouse	717,167	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	No combustion
No. 1 BOP Caster	Fugitives (Roof Monitor)	717,167	molten steel	0.0000	lb/ton	0.00%	N/A	0.0000	0.0000	Not Applicable

Table 3-5
US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES
NO_X
All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 2 Q-BOP Shop LMF	Fugitives (Roof Monitor)					N/A	N/A	0.0000	0.0000	See NOx Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	0	molten steel	0.08	lb/ton	99.72%	0.00%	0.0000	0.0000	AIRS
	Hot Metal Desulfurization Baghouse	0	hot metal	0.0024	lb/ton	99.40%	0.00%	0.0000	0.0000	ISPAT Inland Stack Test
	Continuous Casting	0	molten steel	0.00	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	Secondary Emissions Baghouse	0	molten steel	0.0000	lb/ton	99.72%	0.00%	0.0000	0.0000	Not Applicable
	116' Elevation North and South Flux Handling System Baghouses	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	North Roof Baghouse (166')	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	South Roof Baghouse (166')	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Middle Roof Baghouse (166')	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Day Tank Lime Silo Baghouse	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Lime Dump Station Baghouse	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 1 Hot Fume Exhaust Baghouse	0	molten steel	0.003	lb/ton	94.99%	0.00%	0.0000	0.0000	Inland Steel EAF Shop modifications construction permit application submitted March 1994
	No. 2 Hot Fume Exhaust Baghouse	0	molten steel	0.003	lb/ton	94.99%	0.00%	0.0000	0.0000	Inland Steel EAF Shop modifications construction permit application submitted
	LMF 1 & 2 Material Handling System	0	molten steel	0.00	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	0	molten steel	0.003	lb/ton	97.99%	0.00%	0.0000	0.0000	Inland Steel EAF Shop modifications construction permit application submitted March 1994
	RH Vacuum Degasser Slag Conditioning Baghouse	0	molten steel	0.00015	lb/ton	100.00%	0.00%	0.0000	0.0000	Permit Application for PH Vacuum Degasser (October 1988)
	No. 3 LMF Material Handling System	0	molten steel	0.00000	lb/ton	97.99%	0.00%	0.0000	0.0000	Not Applicable
No. 2 Q-BOP Caster	Fugitives (Roof Monitor)	0	molten steel	0.0000	lb/ton	95.00%	N/A	0.0000	0.0000	Source registration notification submitted April 1995

Table 3-5a

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
FUGITIVE EMISSION CALCULATION

NO_X

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
No. 1 BOP Shop	Gas Cleaning System (2 units)	717,167	molten steel	0.08	lb/ton	99.72%	0.0803	0.0183	Gas Cleaning System Factor
	Hot Metal Desulfurization Baghouse	609,592	hot metal	0.0024	lb/ton	98.50%	0.0110	0.0025	Hot Metal Desulf Factor
	CAS Bell Baghouse	717,167	molten steel	0.0000	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	Flux Handling Baghouse	717,167	molten steel	0.0000	lb/ton	99.00%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.091	0.021	
No. 2 Q-BOP Shop & LMF	Gas Cleaning System (2 units)	0	molten steel	0.08	lb/ton	99.72%	0.0000	0.0000	Gas Cleaning System Factor
	Hot Metal Desulfurization Baghouse	0	hot metal	0.0024	lb/ton	99.40%	0.0000	0.0000	Hot Metal Desulf Factor
	No. 1 Hot Fume Exhaust Baghouse	0	molten steel	0.003	lb/ton	94.99%	0.0000	0.0000	No. 1 Hot Fume Exhaust Factor
	No. 2 Hot Fume Exhaust Baghouse	0	molten steel	0.003	lb/ton	94.99%	0.0000	0.0000	No. 2 Hot Fume Exhaust Factor
	LMF 1 & 2 Material Handling System	0	molten steel	0.00	lb/ton	95.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	0	molten steel	0.003	lb/ton	97.99%	0.0000	0.0000	No.3 LMF Hot Fume Extracation Factor
	RH Vacuum Degasser Slag Conditioning Baghouse	0	molten steel	0.00015	lb/ton	100.00%	0.0000	0.0000	RH Vacuum Degasser Factor
	LMF 3 Material Handling System	0	molten steel	0.00000	lb/ton	97.99%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.0000	0.0000	

Table 3-6

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

CO

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 13 Blast Furnace	Casthouse Fugitives	609,592	hot metal	0.000	lb/ton	99.80%	N/A	0.0000	0.0000	Not Applicable
	Casthouse Emission Control Baghouse	609,592	hot metal	0.000	lb/ton	99.80%	0.00%	0.0000	0.0000	Not Applicable
	Slag Pit Operations	152,398	slag	0.070	lb/ton	0.00%	0.00%	5.3530	1.2221	ISPAT Inland Permit Application
PCI	Coal Pulverizer Bldg.	91,439	coal	0.000	lb/ton	N/A	N/A	0.0000	0.0000	Not Applicable
No. 1 BOP Shop	Fugitives (Roof Monitor)					N/A	N/A	138.5567	31.6339	See CO Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	717,167	molten steel	138.00	lb/ton	99.72%	94.35%	2788.0473	636.5405	AIRS, Carbon Balance and March 1996 Stack Test
	Hot Metal Desulfurization Baghouse	609,592	hot metal	0.00	lb/ton	98.50%	0.00%	0.0000	0.0000	Not Applicable
	Continuous Casting	717,167	molten steel	0.00	lb/ton	0.00%	0.00%	0.0000	0.0000	Not Applicable
	CAS Bell/OB Lancing Baghouse	717,167	molten steel	0.0000	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	Flux Handling Baghouse	717,167	molten steel	0.0000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
No. 1 BOP Caster	Fugitives (Roof Monitor)	717,167	molten steel	0.0000	lb/ton	0.00%	N/A	0.0000	0.0000	Not Applicable

Table 3-6

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

CO

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 2 Q-BOP Shop LMF	Fugitives (Roof Monitor)					N/A	N/A	0.0000	0.0000	See CO Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	0	molten steel	138.00	lb/ton	99.72%	94.35%	0.0000	0.0000	AIRS, Carbon Balance and March 1996 Stack Test
	Hot Metal Desulfurization Baghouse	0	hot metal	0.00	lb/ton	99.40%	0.00%	0.0000	0.0000	Not Applicable
	Continuous Casting	0	molten steel	0.00	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	Secondary Emissions Baghouse	0	molten steel	0.00	lb/ton	99.72%	0.00%	0.0000	0.0000	Not Applicable
	116' Elevation North and South Flux Handling System Baghouses	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	North Roof Baghouse (166')	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	South Roof Baghouse (166')	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Middle Roof Baghouse (166')	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Day Tank Lime Silo Baghouse	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Lime Dump Station Baghouse	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 1 Hot Fume Exhaust Baghouse	0	molten steel	0.05	lb/ton	94.99%	0.00%	0.0000	0.0000	Inland Steel EAF Shop modifications construction permit application submitted March 1994
	No. 2 Hot Fume Exhaust Baghouse	0	molten steel	0.05	lb/ton	94.99%	0.00%	0.0000	0.0000	Inland Steel EAF Shop modifications construction permit application submitted March 1994
	LMF 1 & 2 Material Handling System	0	molten steel	0.00	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	0	molten steel	0.05	lb/ton	97.99%	0.00%	0.0000	0.0000	Inland Steel EAF Shop modifications construction permit application submitted March 1994
	RH Vacuum Degasser Slag Conditioning Baghouse	0	molten steel	0.887	lb/ton	100.00%	0.00%	0.0000	0.0000	Weight percent of carbon in steel before and after degassing process. Assume all carbon removed during the degassing process is converted to CO.
	No. 3 LMF Material Handling System	0	molten steel	0.000	lb/ton	97.99%	0.00%	0.0000	0.0000	Not Applicable
No. 2 Q-BOP Caster	Fugitives (Roof Monitor)	0	molten steel	0.0000	lb/ton	95.00%	N/A	0.0000	0.0000	Source registration notification submitted April 1995

Table 3-6a

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
FUGITIVE EMISSION CALCULATION

CO

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
No. 1 BOP Shop	Gas Cleaning System (2 units)	717,167	molten steel	138.00	lb/ton	99.72%	138.5567	31.6339	Gas Cleaning System Factor
	Hot Metal Desulfurization Baghouse	609,592	hot metal	0.00	lb/ton	98.50%	0.0000	0.0000	Not Applicable
	CAS Bell Baghouse	717,167	molten steel	0.0000	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	Flux Handling Baghouse	717,167	molten steel	0.0000	lb/ton	99.00%	0.0000	0.0000	Not Applicable
						Total Fugitives	138.557	31.634	
No. 2 Q-BOP Shop & LMF	Gas Cleaning System (2 units)	0	molten steel	138.00	lb/ton	99.72%	0.0000	0.0000	Gas Cleaning System Factor
	Hot Metal Desulfurization Baghouse	0	hot metal	0.00	lb/ton	99.40%	0.0000	0.0000	Not Applicable
	No. 1 Hot Fume Exhaust Baghouse	0	molten steel	0.05	lb/ton	94.99%	0.0000	0.0000	No.1 Hot Furme Exhaust Factor
	No. 2 Hot Fume Exhaust Baghouse	0	molten steel	0.05	lb/ton	94.99%	0.0000	0.0000	No.2 Hot Fumre Exhaust Factor
	LMF 1 & 2 Material Handling System	0	molten steel	0.00	lb/ton	95.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	0	molten steel	0.05	lb/ton	97.99%	0.0000	0.0000	No.3 LMF Hot Fume Extracation Factor
	RH Vacuum Degasser Slag Conditioning Baghouse	0	molten steel	0.887	lb/ton	100.00%	0.00E+00	0.00E+00	RH Vacuum Degasser Factor
	LMF 3 Material Handling System	0	molten steel	0.000	lb/ton	97.99%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.0000	0.0000	

Table 3-7

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

VOC

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency %	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 13 Blast Furnace	Casthouse Fugitives	609,592	hot metal	0.0000	lb/ton	99.80%	0.00%	0.0000	0.0000	Not Applicable
	Casthouse Emission Control Baghouse	609,592	hot metal	0.00000	lb/ton	99.80%	0.00%	0.0000	0.0000	Not Applicable
	Slag Pit Operations	152,398	slag	0.00134	lb/ton	0.00%	0.00%	0.1017	0.0232	ISPAT Inland Permit Application
PCI	Coal Pulverizer Bldg.	91,439	coal	0.000	lb/ton	N/A	N/A	0.0000	0.0000	Not Applicable
No. 1 BOP Shop	Fugitives (Roof Monitor)					N/A	N/A	0.0066	0.0015	See VOC Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	717,167	molten steel	0.002	lb/ton	99.72%	0.00%	0.7152	0.1633	AIRS
	Hot Metal Desulfurization Baghouse	609,592	hot metal	0.001	lb/ton	98.50%	0.00%	0.3002	0.0685	AIRS
	Continuous Casting	717,167	molten steel	0.000	lb/ton	0.00%	0.00%	0.0000	0.0000	Not Applicable
	CAS Bell/OB Lancing Baghouse	717,167	molten steel	0.00000	lb/ton	94.99%	0.00%	0.0000	0.0000	Source registration notification submitted April 1995
	Flux Handling Baghouse	717,167	molten steel	0.00000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
No. 1 BOP Caster	Fugitives (Roof Monitor)	717,167	molten steel	0.00000	lb/ton	0.00%	N/A	0.0000	0.0000	Not Applicable

Table 3-7

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM PROCESS SOURCES

VOC

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
No. 2 Q-BOP Shop LMF	Fugitives (Roof Monitor)					N/A	N/A	0.0000	0.0000	See VOC Fugitive Emission Calculation Table
	Gas Cleaning System (2 units)	0	molten steel	0.002	lb/ton	99.72%	0.00%	0.0000	0.0000	AIRS
	Hot Metal Desulfurization Baghouse	0	hot metal	0.001	lb/ton	99.40%	0.00%	0.0000	0.0000	AIRS
	Continuous Casting	0	molten steel	0.000	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	Secondary Emissions Baghouse	0	molten steel	0.000	lb/ton	99.72%	0.00%	0.0000	0.0000	Not Applicable
	116' Elevation North and South Flux Handling System Baghouses	0	molten steel	0.000	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	North Roof Baghouse (166')	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	South Roof Baghouse (166')	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Middle Roof Baghouse (166')	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Day Tank Lime Silo Baghouse	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	Lime Dump Station Baghouse	0	molten steel	0.00	lb/ton	99.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 1 Hot Fume Exhaust Baghouse	0	molten steel	0.000	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	No. 2 Hot Fume Exhaust Baghouse	0	molten steel	0.000	lb/ton	94.99%	0.00%	0.0000	0.0000	Not Applicable
	LMF 1 & 2 Material Handling System	0	molten steel	0.000	lb/ton	95.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	0	molten steel	0.000	lb/ton	97.99%	0.00%	0.0000	0.0000	Not Applicable
	RH Vacuum Degasser Slag Conditioning Baghouse	0	molten steel	0.000	lb/ton	100.00%	0.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Material Handling System	0	molten steel	0.000	lb/ton	97.99%	0.00%	0.0000	0.0000	Not Applicable
No. 2 Q-BOP Caster	Fugitives (Roof Monitor)	0	molten steel	0.00000	lb/ton	95.00%	N/A	0.0000	0.0000	Not Applicable

* - See Table 5, Attachment 1

Table 3-7a

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
FUGITIVE EMISSION CALCULATION

VOC

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Capture Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
No. 1 BDP Shop	Gas Cleaning System (2 units)	717,167	molten steel	0.002	lb/ton	99.72%	0.0020	0.0005	Gas Cleaning System Factor
	Hot Metal Desulfurization Baghouse	609,592	hot metal	0.001	lb/ton	98.50%	0.0046	0.0010	Hot Metal Desulf Factor
	CAS Bell Baghouse	717,167	molten steel	0.00000	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	Flux Handling Baghouse	717,167	molten steel	0.00000	lb/ton	99.00%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.007	0.002	
No. 2 Q-BOP Shop & LMF	Gas Cleaning System (2 units)	0	molten steel	0.002	lb/ton	99.72%	0.0000	0.0000	Gas Cleaning System Factor
	Hot Metal Desulfurization Baghouse	0	hot metal	0.001	lb/ton	99.40%	0.0000	0.0000	Hot Metal Desulf Factor
	No. 1 Hot Fume Exhaust Baghouse	0	molten steel	0.000	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	No. 2 Hot Fume Exhaust Baghouse	0	molten steel	0.000	lb/ton	94.99%	0.0000	0.0000	Not Applicable
	LMF 1 & 2 Material Handling System	0	molten steel	0.000	lb/ton	95.00%	0.0000	0.0000	Not Applicable
	No. 3 LMF Hot Fume Extracation Exhaust	0	molten steel	0.000	lb/ton	97.99%	0.0000	0.0000	Not Applicable
	RH Vacuum Degasser Slag Conditioning Baghouse	0	molten steel	0.000	lb/ton	100.00%	0.0000	0.0000	Not Applicable
	LMF 3 Material Handling System	0	molten steel	0.000	lb/ton	97.99%	0.0000	0.0000	Not Applicable
						Total Fugitives	0.0000	0.0000	Not Applicable

Table 3-8

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM COMBUSTION SOURCES

PM

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
Blast Furnace No. 13	Stoves (NG)	254	mmcf	7.60	lb/mmcf	100.00%	0.00%	0.967	0.2207	AP-42
	Stoves (BFG)	8,047	mmcf	2.90	lb/mmcf	100.00%	0.00%	11.667	2.6638	AIRS
						Total Stoves		12.634	2.885	
TBBH Boilers	TBBH Boilers (BFG)	22,433	mmcf	2.90	lb/mmcf	100.00%	0.00%	32.528	7.4265	AIRS
						Total Boiler House		32.528	7.426	

Table 3-9

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM COMBUSTION SOURCES

PM_{10}

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
Blast Furnace No. 13	Stoves (NG)	254	mmcf	7.60	lb/mmcf	100.00%	0.00%	0.967	0.2207	AP-42
	Stoves (BFG)	8,047	mmcf	0.96	lb/mmcf	100.00%	0.00%	3.862	0.8818	Oct. 11, 2001 - Stack Test on No. 6 Boiler (100% BFG)
						Total Stoves		4.829	1.1026	
TBBH Boilers	TBBH Boilers (BFG)	22,433	mmcf	0.96	lb/mmcf	100.00%	0.00%	10.768	2.4584	Oct. 11, 2001 - Stack Test on No. 6 Boiler (100% BFG)
						Total Boiler House		10.768	2.458	

Table 3-10

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM COMBUSTION SOURCES

SO_2

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
Blast Furnace No. 13	Stoves (NG)	254	mmcf	0.60	lb/mmcf	100.00%	0.00%	0.076	0.0174	AP-42 (1998)
	Stoves (BFG)	8,047	mmcf	6.39	lb/mmcf	100.00%	0.00%	25.709	5.8696	IDEM SO2 Quarterly Report
						Total Stoves		25.785	5.887	
TBBH Boilers	TBBH Boilers (BFG)	22,433	mmcf	6.39	lb/mmcf	100.00%	0.00%	71.674	16.3638	IDEM SO2 Quarterly Report
						Total Boiler House		71.674	16.364	

Table 3-11

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM COMBUSTION SOURCES

NO_X

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
Blast Furnace No. 13	Stoves (NG)	254	mmcf	280.00	lb/mmcf	100.00%	0.00%	35.620	8.1325	AP-42 (1998)
	Stoves (BFG)	8,047	mmcf	0.61	lb/mmcf	100.00%	0.00%	2.454	0.5603	RATA Testing on Jan 2004
						Total Stoves		38.074	8.693	
TBBH Boilers	TBBH Boilers (BFG)	22,433	mmcf	0.61	lb/mmcf	100.00%	0.00%	6.842	1.5621	RATA Testing on Jan 2004
						Total Boiler House		6.84	1.56	

Table 3-12

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM COMBUSTION SOURCES

CO

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
Blast Furnace No. 13	Stoves (NG)	254	mmcf	84.00	lb/mmcf	100.00%	0.00%	10.686	2.4397	AP-42 (1998)
	Stoves (BFG)	8,047	mmcf	26.50	lb/mmcf	100.00%	0.00%	106.617	24.3417	Stack tests at TBBH No. 4
						Total Stoves		117.303	26.781	
TBBH Boilers	TBBH Boilers (BFG)	22,433	mmcf	26.50	lb/mmcf	100.00%	0.00%	297.238	67.8626	Stack tests at TBBH No. 4
						Total Boiler House		297.238	67.863	

Table 3-13

US STEEL GARY WORKS
CONSTRUCTION PERMIT APPLICATION
BLAST FURNACE NO.13 RELINE
CHANGE IN EMISSION RATES FROM COMBUSTION SOURCES

VOC

All Additional Hot Metal Through No. 1 BOP

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Capture Efficiency	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
								(tons/yr)	(lbs/hr)	
Blast Furnace No. 13	Stoves (NG)	254	mmcf	5.50	lb/mmcf	100.00%	0.00%	0.700	0.1597	AP-42 (1998)
	Stoves (BFG)	8,047	mmcf	0.00	lb/mmcf	100.00%	0.00%	0.000	0.0000	AIRS
						Total Stoves		0.700	0.160	
TBBH Boilers	TBBH Boilers (BFG)	22,433	mmcf	0.00	lb/mmcf	100.00%	0.00%	0.000	0.0000	AIRS
						Total Boiler House		0.000	0.000	